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Revision of the Palearctic species of *Fidiobia* Ashmead (Hymenoptera, Platygastroidea)

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Abstract

The Palearctic species of the genus *Fidiobia* are revised, seventeen new species are described (*F. bohemica* **sp. nov.**; *F. brevialis* **sp. nov.**; *F. communis* **sp. nov.**; *F. gallica* **sp. nov.**; *F. hirta* **sp. nov.**; *F. insoonae* **sp. nov.**; *F. lisenchiae* **sp. nov.**; *F. longiclava* **sp. nov.**; *F. nipponica* **sp. nov.**; *F. platystasioides* **sp. nov.**; *F. politoides* **sp. nov.**; *F. pronotatoides* **sp. nov.**; *F. roatai* **sp. nov.**; *F. rugosifronsoides* **sp. nov.**; *F. sashai* **sp. nov.**; *F. tripotini* **sp. nov.**; *F. vladlubomiri* **sp. nov.**), and eleven species (*F. brevinotaula* Veenakumari et al., 2018; *F. filicornis* Buhl, 2014; *F. flaviabdominalis* Veenakumari et al., 2018; *F. hispanica* Popovici & Buhl, 2010; *F. hofferi* Kozlov, 1978; *F. polita* Buhl, 1998; *F. pronotata* Szabó, 1958; *F. rugosifrons* Crawford, 1916; *F. striatitergitis* (Szabó, 1962); *F. synergorum* (Kieffer, 1921); *F. vanharteni* Buhl, 2010) are redescribed. A key for identification of females and distributional data for each species are provided. Brachypterous specimens are reported for *F. rugosifrons* and *F. hofferi*. *Fidiobia gordoni* Popovici & Buhl, 2010 is treated as a junior synonym of *Fidiobia striatitergitis* (Szabó, 1962).

Keywords

α-taxonomy, egg-parasitoids, new species, Platygastridae, Sceliotrachelinae

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Introduction

Fidiobia Ashmead, 1894 is one of the "classical" genera of Platygastridae, originally described as monotypic, with *F. flavipes* Ashmead, 1894 as the type species. Masner and Huggert (1989) placed *Fidiobia* in Sceliotrachelinae and it is presently the largest genus in the subfamily. The earliest records of *Fidiobia* are from the Eocene, including compression fossils and Baltic amber (Buhl 2002; Talamas and Buffington 2015), and the body plan of this genus has been remarkably conserved. The numerous undescribed species of *Fidiobia*, combined with many species that have been insufficiently described, have created the need for large-scale revision of the genus on a worldwide scale. Our efforts here represent the largest treatment of *Fidiobia* to date.

Taxonomic history

Ashmead (1894) included *Fidiobia* in the Platygastrinae and placed it between *Amitus* Haldeman and *Anopedias* Förster, with interesting remarks comparing structure of the metasoma to that of Telenominae (Scelionidae). The diagnosis of *Fidiobia* in Ashmead (1894) is very general (sculpture of frons, description of notauli) and contains some errors (e.g., number of antennomeres, fore wing venation, propodeum with two foveolae). Because of this, Brues (1909), who was aware of *Fidiobia*, erected *Rosneta* Brues, 1909 with the type species *R. tritici* Brues, 1909, and considered it to be related to *Fidiobia* and *Anopedias*. *Rosneta* was separated from *Fidiobia* by the 9-merous antenna and the deeply grooved notauli (parapsidal furrows in Brues 1909).

Crawford (1916) amended the diagnosis of *Fidiobia*, correcting some of Ashmead's errors: sculpture of frons, number of antennomeres, notauli (mesonotal furrows in Crawford 1916) and the propodeal carinae. Also, Crawford (1916) described the second species in *Fidiobia*, *F. rugosifrons* Crawford, 1916. In the same year, Brèthes (1916), apparently unaware of *Fidiobia* and *Rosneta*, described a new genus, *Triclavus* Brèthes 1916, with the type species *Triclavus bonariensis* Brèthes, 1916, as a genus close to *Allotropa* Förster. Kieffer (1921) described a new monotypic genus, *Fahringeria*, but mentioned no apomorphic character to identify it. Fouts (1924) revisited the diagnosis of *Fidiobia* and treated *Rosneta* as a junior synonym of *Fidiobia*. Fouts (1924) regarded the type species of *Rosneta* as a junior synonym of *F. flavipes*. Two years later, apparently unaware of Fouts (1924), Kieffer (1926) treated *Fidiobia* and *Rosneta* as distinct genera and considered them to be restricted to the Nearctic region. Concerning *Fidiobia*, Kieffer followed Ashmead's perspective and placed it in the identification keys near *Amitus*, *Isolia* and *Anopedias*. In the case of *Rosneta*, Kieffer placed it near his genus *Fahringeria*. Szelényi (1938) described the monotypic *Platyllotropa* with the type species *P. gallicola* Szelényi, 1938, for which the main distinguishing characteristic was the strongly depressed body. Szelényi (1938) made no mention of possible relationships of *Platyllotropa* with other platygastrid genera. Muesebeck and Masner (1967) transferred *Fidiobia* from the Platygastrinae to Inostemminae and synonymized *Triclavus* with *Fidiobia*.

The next important step in the taxonomy of *Fidiobia* was made by Masner and Huggert (1989) in their review of the subfamilies Inostemmatinae and Sceliotrachelinae. Here, *Fidiobia* was for the first time well described, keyed, and diagnosed and the relationships between *Fidiobia* and other platygastrid genera were discussed. Masner and Huggert (1989) treated *Fahringeria* and *Platyllotropa* as junior synonyms of *Fidiobia*.

Table 1. Species of *Fidiobia* described prior to this study and their distribution.

Nr. crt.	Species	Author(s)	Year	Biogeographical regions
1	*F. benjamini*	(Nixon)	1969	Afrotropical
2	*F. danielssoni*	Buhl	2001	
3	*F. tanzaniana*	Buhl	2010	
4	*F. vanharteni*	Buhl	2010	
5	*F. zebra*	Buhl	2010	
6	*F. filicornis*	Buhl	2014	
7	*F. semirufa*	Buhl	2014	
8	*F. tschirnhausi*	Buhl	2014	
9	*F. celeritas*	van Noort and Lahey	2021	
10	*F. synergorum*	(Kieffer)	1921	Palearctic
11	*F. pronotata*	Szabó	1958	
12	*F. hofferi*	Kozlov	1978	
13	*F. polita*	Buhl	1998	
14	*F. gordoni*	Popovici and Buhl	2010	
15	*F. hispanica*	Popovici and Buhl	2010	
16	*F. flavipes*	Ashmead	1894	Nearctic
17	*F. drakei*	(Oglobin)	1944	
18	*F. rugosifrons*	Crawford	1916	Holarctic
19	*F. bonariensis*	(Brèthes)	1916	Neotropical
20	*F. citri*	(Nixon)	1969	
21	*F. asina*	(Loiácono)	1982	
22	*F. dominica*	Evans and Peña	2005	
23	*F. flava*	Buhl	2011	
24	*F. semistriata*	Buhl et al.	2009	Oriental
25	*F. nagarajae*	Veenakumari et al.	2012	
26	*F. virakthamati*	Veenakumari et al.	2012	
27	*F. brevinotaula*	Veenakumari et al.	2018	
28	*F. carinata*	Veenakumari et al.	2018	
29	*F. crocea*	Veenakumari et al.	2018	
30	*F. dantela*	Veenakumari et al.	2018	
31	*F. decora*	Veenakumari et al.	2018	
32	*F. doddi*	Veenakumari et al.	2018	
33	*F. flaviabdominalis*	Veenakumari et al.	2018	
34	*F. flavifrons*	Veenakumari et al.	2018	
35	*F. fusca*	Veenakumari et al.	2018	
36	*F. galben*	Veenakumari et al.	2018	
37	*F. hima*	Veenakumari et al.	2018	
38	*F. leptidantela*	Veenakumari et al.	2018	
39	*F. longiabdominalis*	Veenakumari et al.	2018	
40	*F. multicarinata*	Veenakumari et al.	2018	
41	*F. nandi*	Veenakumari et al.	2018	
42	*F. nilgiriensis*	Veenakumari et al.	2018	
43	*F. prashanthi*	Veenakumari et al.	2018	
44	*F. punyakoti*	Veenakumari et al.	2018	
45	*F. setosa*	Veenakumari et al.	2018	
46	*F. striatipleura*	Veenakumari et al.	2018	
47	*F. szaboi*	Veenakumari et al.	2018	
48	*F. vandu*	Veenakumari et al.	2018	

Until 1989, only ten species of *Fidiobia* had been formally described (Table 1) despite there being numerous undescribed species present in the Canadian National Collection of Insects, Arachnids, and Nematodes (Ottawa). Masner and Huggert (1989) incorporated the morphological diversity present in these undescribed species, in addition to those that had been formally characterized, in their description and diagnosis of the genus. The number of *Fidiobia* species that have been described has since increased to forty-eight (Table 1). This spectacular rise in the number of newly described species of *Fidiobia* came to support the metaphoric comparison of this genus with the tip of an iceberg by Lubomír Masner in 2010 (Popovici and Buhl 2010).

This paper is only a small part of a large and ambitious project concerning the revision of the world fauna of *Fidiobia*, a genus of beetle egg parasitoids.

Materials and methods

Specimens

Taxonomic studies are greatly informed by the examination of large numbers of specimens to determine morphological variation and geographic distribution, and to associate conspecific males and females. *Fidiobia* is not a rare genus, but the number of specimens in European collections is typically very small. We believe this is partly because knowledge about the biology of the genus is lacking, which hinders the development of more efficient collecting strategies. For example, some genera that are now commonly collected (e.g., *Baeoneurella* Dodd, *Tiphodytes* Bradley, *Baryconus* Förster) were once considered rare. Now that the biology of some of their species has been elucidated, they can be easily captured with appropriate methods in certain habitats.

The specimens used in this study are deposited in the following institutions with the abbreviations (in bold) used in the text and the name of curators in parentheses:

CNCI Canadian National Collection of Insects, Arachnids, and Nematodes, Ottawa, Canada (Lubomír Masner);
HNHM Hungarian Natural History Museum, Budapest, Hungary (Zoltán Vas);
ISNB Institut royal des Sciences naturelles de Belgique, Bruxelles (Yvonnick Gerard);
MNHN Muséum national d'Histoire naturelle, Paris (Claire Villement);
NHMUK Natural History Museum, London, United Kingdom (David Notton);
NHRS Naturhistoriska Riksmuseet, Stockholm, Sweden (Rune Bygebjerg);
NMPC National Museum (Natural History), Prague, Czech Republic (Jan Macek);
OPPC O.A. Popovici personal collection, stored in the Faculty of Biology, University 'Al. I. Cuza' Iasi, Romania;

ZMUC Zoological Museum, University of Copenhagen, Denmark (Lars Vilhelmsen).

Primary types

Images of the primary types of *Fidiobia rugosifrons* Crawford, 1916, were made available via the Museum of Biological Diversity database at The Ohio State University (https://mbd-db.osu.edu/hol/collecting_units/0eae5d1c-58ba-3aaa-e053-0100007f2cc9) by Prof. Dr. Norman Johnson. Primary types of *Platyllotropa gallicola* Szelényi, 1938 (HNHM), *Fidiobia tatrae* Szelényi, 1941 (HNHM), *Rosneta phryne* Debauche, 1947 (ISNB), *Fidiobia pronotata* Szabó, 1958 (HNHM), *Fidiobia hofferi* Kozlov, 1978 (OPPC), *Fidiobia polita* Buhl, 1998 (ZMUC), *Fidiobia hispanica* Popovici & Buhl, 2010 (ZMUC), *Fidiobia vanharteni* Buhl, 2010 (ZMUC) and *Fidiobia filicornis* Buhl, 2012 (ZMUC) were studied and photographed. In our opinion, the digitisation of the type specimens is essential because it allows the specimens to be accessible to a large number of researchers around the world while minimizing the risk associated with shipping.

Collecting and preserving methods

The specimens used in this study were collected using a variety of methods. For each specimen, the collecting method, when known, is placed in parentheses using the following abbreviations:

LT light trap.
MT Malaise trap. For some species this method was very useful in obtaining a series of specimens.
SN sweep net. This method uses an entomological net with a circular or triangular frame. Specimens are extracted individually using an aspirator.
SS screen sweeping. This method uses an entomological net with a triangular frame (Noyes 1982), equipped with a 4–7 mm wire mesh screen across the net opening to exclude debris and large insects (e.g., butterfly, bumblebees, crickets, grasshoppers). A similar net was used by Fusu and Polaszek (2017) and Popovici et al. (2018).
TT conical trunk traps for collecting parasites of xylobionts (Tereshkin 1990, Varga 2017).
YPT yellow pan trap.

Samples were stored in 80% ethanol at -20 °C. The micro-Hymenoptera, including minute species of *Fidiobia*, were sorted in the laboratory using a Kruss MSZ54 stereomicroscope. Specimens for general examination were mounted on white points, and specimens selected for photography were mounted on black points to reduce glare

during imaging. Prior to mounting, the specimens were dehydrated in a series of increasingly concentrated ethanol (90%, 99.6%) and dried using hexamethyldisilazane ('HMDS', Brown 1993) to prevent the collapse of weakly sclerotized individuals. For species with a large series of specimens, the antenna and the wings on one side of the body (usually the left side) were removed. Wing interference patterns (WIP) were illustrated using the method of Shevtsova et al. (2011), Shevtsova and Hansson (2011) and Fusu (2017), then the wings and the antenna were mounted in Canada balsam on a small microscope slide placed on the pin, under the labels of the specimen.

Species descriptions

The descriptions of species were generated using vSysLab (https://vsyslab.osu.edu/), an online database application designed to facilitate the generation of descriptions by character data matrices. The output is in the format of „character: state".

Imaging

Specimen photographs were produced using a Leica DFC-450C camera on a Leica 205A stereomicroscope (with 0.63× video objective attached) and a Leica LED5000 HDI dome illuminator at the CERNESIM facility of the "Al. I. Cuza" University of Iaşi. Extended-focus images were produced with Zerene Stacker (PMax algorithm). Digital drawings were accomplished with Adobe Illustrator. Scanning electron micrographs were produced with a VEGA TESCAN SEM unit at the facility of the "Al. I. Cuza" University of Iaşi (Faculty of Biology) and with HITACHI SU3500 at the facility of the MNHN**.** The rendered images were postprocessed in Adobe Photoshop to enhance clarity.

Distribution maps

The distribution maps were produced using QGIS 3.22 (QGIS Development Team 2021). On each map, the red areas and points represent the distribution of the material presented in this paper and the blue areas represent the distribution of species from previously published data.

Terminology

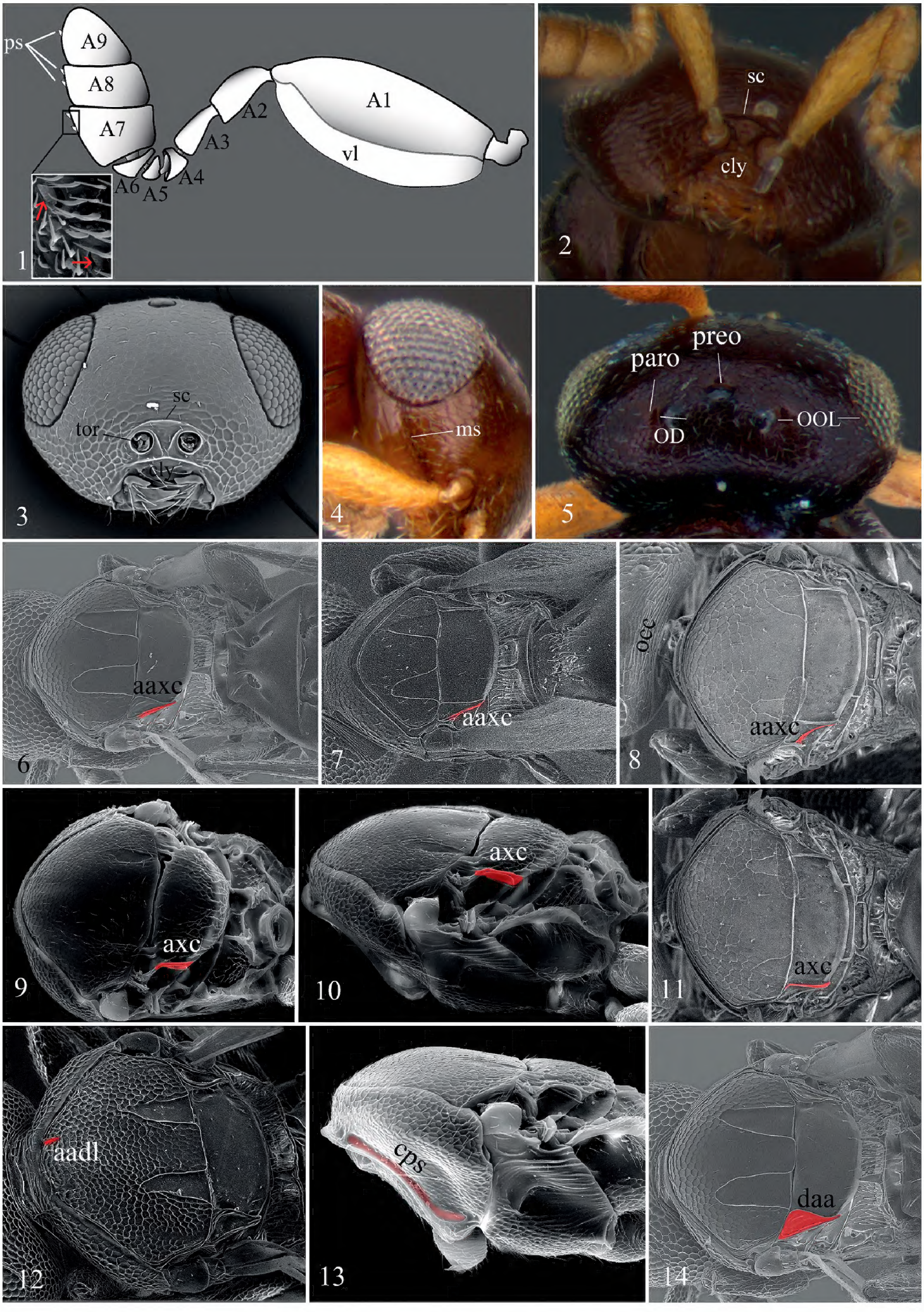
Morphological terms follow Masner and Huggert (1989), Mikó et al. (2007) and Lahey et al. (2019). Morphological terms were matched to concepts in the Hymenoptera Anatomy Ontology (Yoder et al. 2010). Uniform Resource Identifiers (URIs) in the format HAO_XXXXXXX represent concepts in the HAO and are provided to enable readers to confirm their understanding of the concepts being referenced. URI links for morphological terms are provided in Table 2.

The terminology of surface sculpturing is from Eady (1968) and Harris (1979).

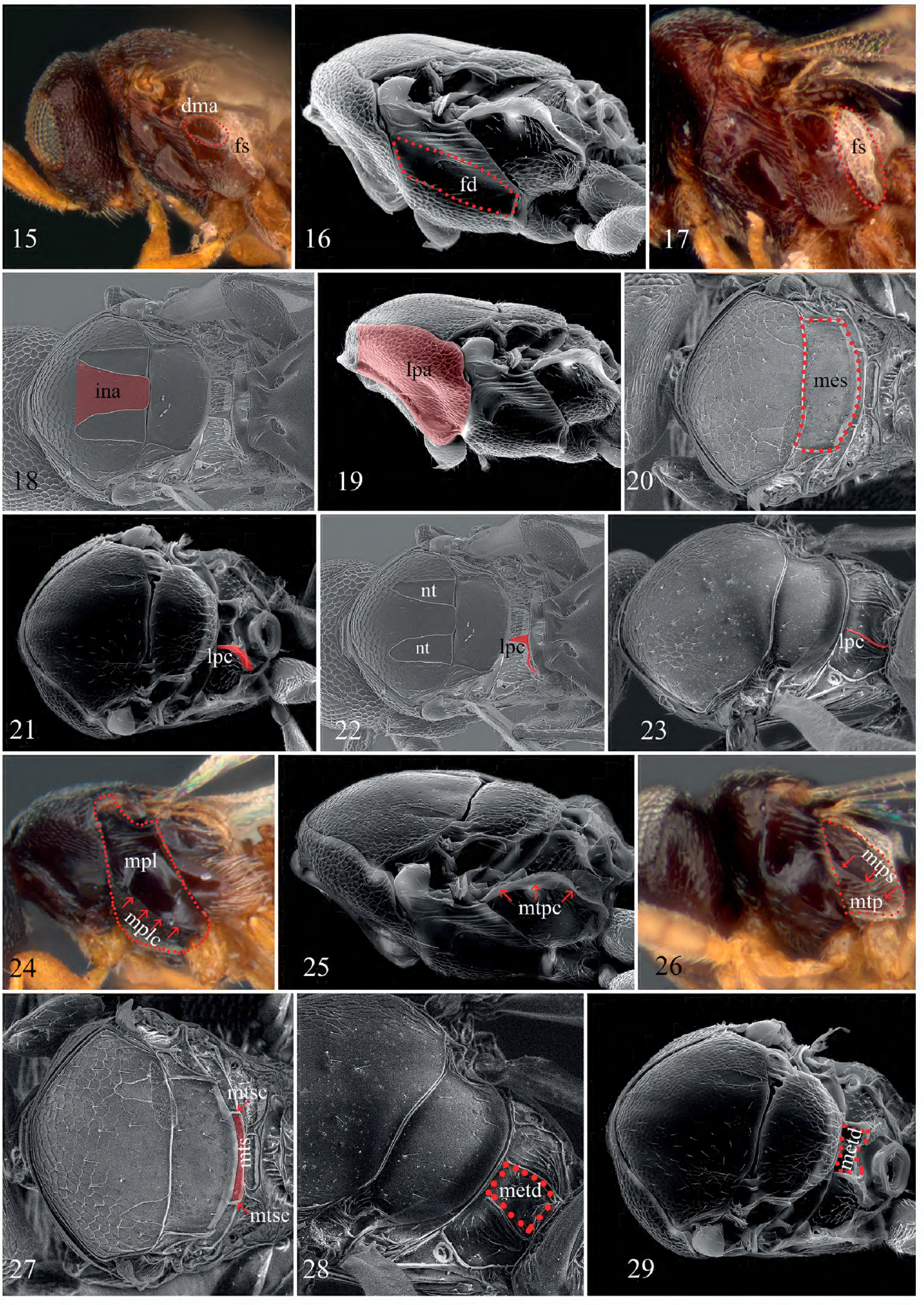
Table 2. Morphological terms used with abbreviations in parentheses, cross-referenced to an ontological (formal) definition (Hymenoptera Anatomy Ontology; URI = Uniform Resource Identifier) and the figures where these structures are emphasized.

Terms	definition	URIs	Fig.
HEAD			
antennomere **A1, ... A10**	The anatomical structure that is delimited by the proximal and distal margins of the antennal sclerite.	http://purl.obolibrary.org/obo/HAO_0000107	**1**
clypeus (**cly**)	The area that corresponds to the site of origin of the clypeo-epipharyngeal muscle.	http://purl.obolibrary.org/obo/HAO_0000212	**2–3**
malar sulcus (**ms**)	The sulcus that extends between the ventral margin of the compound eye and the base of the mandible.	http://purl.obolibrary.org/obo/HAO_0000504	**4**
occiput (**occ**)	The area that is concave and surrounds the postocciput.	http://purl.obolibrary.org/obo/HAO_0000658	**8**
OD	The diameter of the ocellus.	http://purl.obolibrary.org/obo/HAO_0002107	**5**
ocular ocellar line (**OOL**)	The anatomical line that is shortest and connects the compound eye and the lateral ocellus.	http://purl.obolibrary.org/obo/HAO_0000662	**5**
paraocellar depressions (**paro**)	The depressions that flank the lateral margins of the lateral ocelli.	Lahey et al. 2019 https://doi.org/10.3897/jhr.73.33876	**5**
preocellar depression (**preo**)	The depression that flanks the anterior margin of the anterior ocellus.	Lahey et al. 2019 https://doi.org/10.3897/jhr.73.33876	**5**
epitorular carina (**sc**)	The carina that dorsally surrounds the antennal foramen.	Lahey et al. 2021 https://doi.org/10.3897/jhr.87.59794	**2–3**
sensillar formula (**ps**)	Distribution of papillary sensilla (**ps**) on the ventral clavomeres of the female.	Lahey et al. 2019 https://doi.org/10.3897/jhr.73.33876	**1**
torulus (**tor**)	The foramen that is located on the head in which the radicle is positioned.	http://purl.obolibrary.org/obo/HAO_0001022	**3**
ventral (inner) lamella on A1 (**vl**)	(Semi)transparent sharp edge on the ventral side of the A1, usually on the apex, but sometimes on the entire length of A1, housing the A2 or A2-A6.	Modified after Masner and Huggert 1989	**1**
MESOSOMA			
antero-admedian line (**aadl**)	The signum that is submedian and located on the anterior margin of the mesoscutum and corresponds to the site of origin of the longitudinal flight muscle	http://purl.obolibrary.org/obo/HAO_0000128	**12**
axilloaxillular carina (**aaxc**)	Carina that connects the axillar carina to the axillular carina. Can be regarded as an extension of the axillar carina.	Present study.	**6–8**
axillular carina (**axc**)	The axillular line that is a carina.	http://purl.obolibrary.org/obo/HAO_0000161	**9–11**
transverse pronotal sulcus (**cps**)	The sulcus that corresponds to the anteromedian pronotal ridge.	http://purl.obolibrary.org/obo/HAO_0001032	**13**
dorsal axillar area (**daa**)	The area that is located medially on the axilla and is delimited laterally by the axillar carina and posteromedially by scutoscutellar sulcus.	http://purl.obolibrary.org/obo/HAO_0000252	**14**
dorsal metapleural area (**dma**)	The area that is delimited posterodorsally by the metapleural carina and anteroventrally by the metapleural sulcus.	http://purl.obolibrary.org/obo/HAO_0000261	**15**
mesofemoral depression (**fd**)	The scrobe that is located on the mesopleuron into which the mesofemur fits when pressed against the mesosoma.	http://purl.obolibrary.org/obo/HAO_0000326	**16**
foamy structure (**fs**)	Foamy structures are extensions of cuticle that usually emanate from carinae on the propodeum and metapleuron but may also occur on T1 and S1.	Lahey et al. 2019 https://doi.org/10.3897/jhr.73.33876	**15, 17**
internotaular area (**ina**)	The area on the mesoscutum that is delimited laterally by notauli	Mikó et al. 2010 https://doi.org/10.11646/zootaxa.2708.1.1	**18**
lateral pronotal area (**lpa**)	The area of the pronotum that is lateral and delimited medially by the epomial carina.	http://purl.obolibrary.org/obo/HAO_0000483	**19**

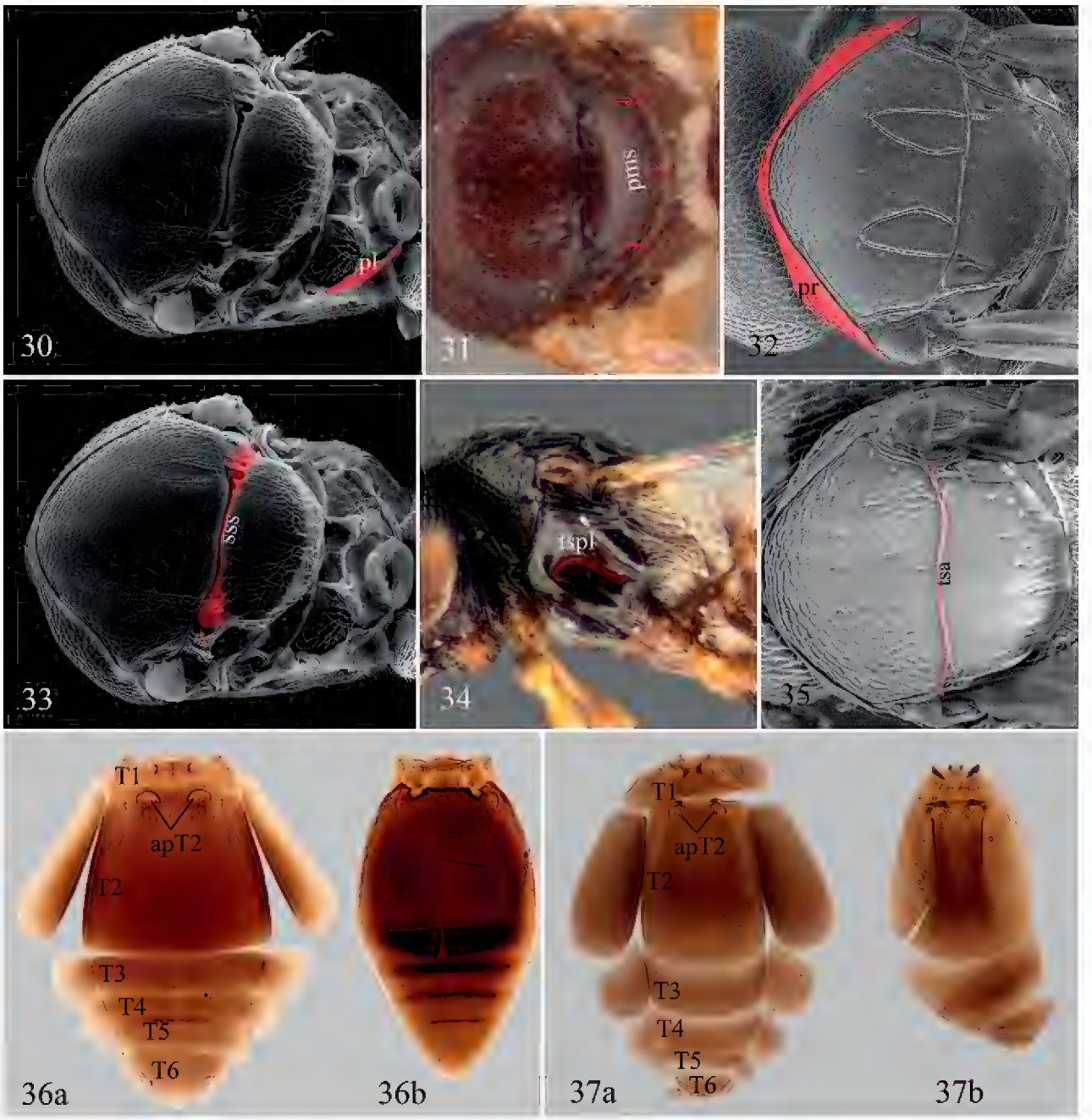
Terms	definition	URIs	Fig.
lateral propodeal carina (**lpc**)	The carina that is oblique and arises submedially from the anterior margin of the metapectal-propodeal complex and extends to the posterior propodeal projection.	http://purl.obolibrary.org/obo/HAO_0000486	**21–23**
marginal setae of fore wing	The row of setae that is located along the margin of the wing blade in the same plane as the wing blade.	http://purl.obolibrary.org/obo/HAO_0000511	
mesocutellum (**mes**)	The scutellum that is located on the mesonotum.	http://purl.obolibrary.org/obo/HAO_0000574	**20**
mesopleural carina (**mplc** – red arrow)	The carina that crosses the mesopleuron and limits ventrally the mesofemoral depression.	http://purl.obolibrary.org/obo/HAO_0000559	**24**
mesopleuron (**mpl** – marked with red dots)	The area that is located lateral of the mesodiscrimen.	http://purl.obolibrary.org/obo/HAO_0000566	**24**
mesoscutum	The scutum that is located on the mesonotum.	http://purl.obolibrary.org/obo/HAO_0000575	
metapleural carina (**mtpc**)	The carina that delimits the metapleuron dorsally from the propodeum, extends from just ventral of the metapleural arm to the metacoxal articulation and passes anteroventral to the propodeal spiracle.	http://purl.obolibrary.org/obo/HAO_0000609	**25, 50**
metapleural sulcus (**mtps** – red arrow)	The line that corresponds with the metapleural ridge.	http://purl.obolibrary.org/obo/HAO_0000614	**26**
metapleuron (**mtp** – marked with red dots)	The area of the metapectal-propodeal complex that is located laterally of the metadiscrimen.	http://purl.obolibrary.org/obo/HAO_0000621	**26**
metascutellar carina (**mtsc**)	The carina that delimits laterally the metascutellum.	http://purl.obolibrary.org/obo/HAO_0000624	**27**
metascutellum (**mts**)	The area that is located posteromedially on the metanotum, is delimited laterally by the metanotal trough and corresponds to the reservoir of the dorsal vessel.	http://purl.obolibrary.org/obo/HAO_0000625	**27**
metasomal depression (**metd**)	The acetabulum that is concave, surrounds the nucha and accommodates the base of the metasoma.	http://purl.obolibrary.org/obo/HAO_0000627	**28–29**
notauli (**nt**)	The line that extends submedially along the mesoscutum and corresponds to the median border of the site of origin of the first mesopleuro-mesonotal muscle.	http://purl.obolibrary.org/obo/HAO_0000647	**22**
parapsidal lines	The signum that is located between the notaulus and the parascutal carina and corresponds to the site of origin of the dorsoventral indirect flight muscle.	http://purl.obolibrary.org/obo/HAO_0000694	
plica (**pl**)	The carina that arises from the anterior margin of the abdominal tergum 1 medially of the propodeal spiracle extends to the posterior propodeal projection.	http://purl.obolibrary.org/obo/HAO_0000735	**30**
posterior mesoscutellar sulcus (**pms**)	The line that extends along the posterior margin of the mesoscutellum and corresponds to the posterior mesoscutellar ridge.	http://purl.obolibrary.org/obo/HAO_0000757	**31**
prespecular sulcus	The sulcus that delimits anteriorly the speculum and corresponds to the anterior margin of the speculum.	http://purl.obolibrary.org/obo/HAO_0000816	**42**
pronotum (**pr**)	The notum that is located in the prothorax.	http://purl.obolibrary.org/obo/HAO_0000853	**32**
scuto-scutellar sulcus (**sss**)	The sulcus that extends along the scutoscutellar suture.	http://purl.obolibrary.org/obo/HAO_0000919	**33**
transepisternal line (**tspl**)	The line that is longitudinal, extends ventrolaterally on the mesopleuron and corresponds with the site of origin of the second and third mesopleuro-third axillary sclerite of fore wing muscle and the second mesopleuro-mesonotal muscle.	http://purl.obolibrary.org/obo/HAO_0001205	**34**
transscutal articulation (**tsa**)	The line of separation that extends along the transscutal line.	http://purl.obolibrary.org/obo/HAO_0001204	**35**
METASOMA			
metasomal tergite 1, 2, ... n. (**T1–Tn**)	The abdominal tergum that is located in the metasoma.	http://purl.obolibrary.org/obo/HAO_0001349	**36–37**
anterior pits of T2 (**apT2**)	Paired, oval or circular depressions situated anterolaterally on T2, often filled with dense pilosity.	https://doi.org/10.4039/entm121147fv	**36–37**



Figures 1–14. Morphological structures: **1** *F. gallica* **2** *F. communis* **3** *Fidiobia* sp. **4** *F. tripotini* **5** *F. nipponica* **6, 14** *F. roatai* **7** *F. pronotata* **8, 11** *F. hofferi* **9, 10, 13** *F. striatitergitis* **12** *F. rugosifrons*.



Figures 15–29. Morphological structures: **15, 17** *F. nipponica* **16, 19, 21, 25, 29** *F. striatitergitis* **18, 22** *F. roatai* **20, 27** *F. hofferi* **23, 28** *F. synergorum* **24** *F. gallica* **26** *F. communis*.



Figures 30–37. Morphological structures: **30,33,36** *F. striatitergitis* **31** *F. nipponica* **32,34** *F. vladlubomiri* **35** *F. flaviabdominalis* **37** *Fidiobia* sp.

Results

Here, we follow the generic concept of *Fidiobia* presented in Masner and Huggert (1989).

Males of many species of *Fidiobia* are unknown, rare, or morphologically similar to their female conspecifics. For this reason, we present a key to females; however, given the similarity between males and females of many species, the identification of males may be possible using this key.

Key to Palearctic *Fidiobia* (females)

1 Antenna 10-merous (Figs 232, 237); plica converging with lateral propodeal carina (Fig. 239); T1 subrectangular (Figs 36, 228) **2**

– Antenna 9-merous (Figs 199, 191, 219); plica converging with metapleural carina (Figs 285, 292); T1 usually trapezoidal (Fig. 37), in few cases subrectangular 7

2 Notauli present, incised; junction of T1 and T2 covered by a transverse row of long, strong setae (Fig. 228) **3**

– Notauli absent (Figs 125, 127, 259) or indicated only by change in sculpture or setation (Figs 90, 135); junction of T1 and T2 not covered by setae **5**

3 Mesoscutellum with reticulate-rugose to longitudinally strigose microsculpture, smooth anteromedially (Figs 30, 33); T2 strigose (Figs 36a, 228, 282); lateral propodeal carina without foamy structures (Figs 30, 33); median carina present between lateral propodeal carinae; metapleural carina prolonged posterodorsally into a long and strong tooth (Fig. 240) ..... ***F. striatitergitis* (Szabó, 1962)**

– Mesoscutellum smooth throughout; T2 smooth; lateral propodeal carina with foamy structures; metasomal depression without median carina; metapleural carina prolonged posterodorsally into a very small tooth **4**

4 OOL 5× diameter of lateral ocellus (Figs 142, 143); distance between notauli at least twice the maximum width of notaulus; posterior mesoscutellar sulcus present (Fig. 140); metascutellum visible; transepisternal line visible as a ridge on the anteroventral mesopleuron (Fig. 141); mesopleuron with a mesofemoral depression with a mesopleural carina along ventral margin (Fig. 141); dorsal metapleural area glabrous (Fig. 141) ..... ***F. nipponica* sp. nov.**

– OOL at most 3× diameter of posterior ocellus (Fig. 275); distance between notauli about equal to maximum width of notaulus (Fig. 279); posterior mesoscutellar sulcus absent; metascutellum hidden by posterior margin of mesoscutellum; transepisternal line present as a sinuate groove (Fig. 280); mesopleural carina absent; dorsal metapleural area covered with dense silvery setae (Fig. 280) ..... ***F. vladlubomiri* sp. nov.**

5 Body flattened; marginal setae of fore wing long (Fig. 97); posterior side of hind coxa simple, without a setose furrow; transepisternal line absent; prespecular sulcus present ..... ***F. hispanica* Popovici & Buhl, 2010**

– Body not distinctly flattened; marginal setae of fore wing short; posterior side of hind coxa with one or two setose furrows; transepisternal line present; prespecular sulcus absent **6**

6 Malar sulcus absent (Fig. 136); T2 wider than long; A9 longer than wide (Fig. 133); transverse pronotal sulcus covered by dense, short, silver setae; transepisternal line almost complete, straight (Fig. 136); notauli not incised, but visible as a change in setation (Fig. 135); hind coxa with a depression surrounded by two rows of setae, internal row higher than external one, forming a crease that continues to foamy structure of metapleural carina; anterior pits of T2 strongly transverse, medially very close to each other (Fig. 129), or merging together ..... ***F. longiclava* sp. nov.**

– Malar sulcus present (Fig. 257); T2 longer than wide (1.2 times as long as maximum width); A9 wider than long (Fig. 258); transverse pronotal sulcus with few, sparse, short setae; transepisternal line short (Fig. 260); notauli totally absent (Fig. 259); hind coxa with a depression surround-

ed by two rows of almost equal, short setae; anterior pits of T2 ovate, space between anterior pits of T2 larger than the transverse diameter of pits ..... ***F. tripotini* sp. nov.**

7 Notauli present, incised **8**

– Notauli absent **23**

8 Sculpture of frons areolate-rugulose (Figs 85, 174, 184, 185, 189, 218) **9**

– Sculpture of frons reticulate-coriaceous or alutaceous (Figs 51, 122, 149)... **15**

9 A1 strongly widened with lamella well developed along the entire ventral margin (Figs 85, 86); A3 long, at least 0.75 times as long as A2; lateral propodeal carinae converging and rising up posteriorly (Fig. 81b); disc of fore wing with reticulate sculpture (Fig. 87) ..... ***F. gallica* sp. nov.**

– A1 moderately widened with lamella present only in the apical third (Figs 175, 191, 199, 219); A3 short, at most 0.5 times as long as A2; lateral propodeal carinae usually parallel and not rising up posteriorly (Figs 181, 192); disc of fore wing without reticulate sculpture (Figs 176, 194, 222) **10**

10 Brachypterous (Figs 170, 181, 197) **11**

– Macropterous (Figs 187, 195, 202, 213, 215) **13**

11 Apex of fore wing tapering to a point (Fig. 176); dorsal pronotum well-developed, length along midline almost 0.5× length of mesoscutum (Figs 170, 172); median prominence of T1 setose (Fig. 170) ..... ***F. pronotata* Szabó, 1958**

– Apex of fore wing rounded (Figs 181, 197); dorsal pronotum weakly developed, hardly visible in dorsal view (Figs 181, 183, 197); median prominence of T1 glabrous (Fig. 181) **12**

12 Apex of fore wing not reaching the middle of T2 (Fig. 181); area between notauli smooth in posterior half (Fig. 181); lateral pronotal area smooth in ventral half (Fig. 182); transverse carina between lateral propodeal carinae absent (Fig. 181) ..... ***F. pronotatoides* sp. nov.**

– Apex of fore wing surpassing the middle of T2 (Fig. 197); area between notauli entirely sculptured (Fig. 197); lateral pronotal area entirely sculptured (Fig. 198); transverse carina between lateral propodeal carinae present (Fig. 197) ..... ***F. rugosifrons* Crawford, 1916**

13 Area between notauli entirely sculptured (Figs 195, 202, 213, 286); lateral pronotal area entirely sculptured (Fig. 196); scutoscutellar sulcus continuous with a large sulcus along the internal side of axillular carina (Figs 195, 197); dorsal axillar area large ..... ***F. rugosifrons* Crawford, 1916**

– Area between notauli smooth at least posteriorly (Figs 192, 285, 288, 289); lateral pronotal area smooth in ventral half (Figs 193, 221); narrow sulcus along the axillular carina (Figs 220, 285, 288, 289); dorsal axillar area very small **14**

14 Area between notauli entirely smooth (Figs 192, 285); lateral margin of notaulus and axillular carina forming a continuous line; submarginal vein shorter than the length of tegula or absent (Fig. 194); dorsal propodeum

with no foamy structures; epitorular carina absent (Fig. 189)..... ..... ***F. roatai*** **sp. nov.**

– Area between notauli smooth in posterior half (Figs 220, 288, 289); lateral margin of notaulus disjunct from axillular carina; apex of submarginal vein reaching the posterior margin of propodeum (Fig. 216); dorsal propodeum with foamy structures; epitorular carina present (Fig. 218) ....***F. rugosifronsoides*** **sp. nov.**

15 Brachypterous species; fore wing reduced, hardly visible (Fig. 105), or extending to T2 (Figs 104).....***F. hofferi*** **Kozlov, 1978**

– Macropterous species, fore wings extending to or surpassing apex of metasoma (Figs 103, 109) **6**

16 Metascutellum not visible in dorsal view, covered by posterior margin of mesoscutellum (Figs 117, 153) **17**

– Metascutellum visible in dorsal view as a narrow strip bordered by metascutellar carinae (Figs 56, 123, 268, 291, 292).....**8**

17 Marginal setae of fore wings short (Fig. 55) ....***F. brevinotaula*** **Veenakumari et al., 2018**

– Marginal setae of fore wings long (Fig. 119) .....***F. insoonae*** **sp. nov.**

18 Epitorular carina present on frons.....**19**

– Epitorular carina absent on frons **21**

19 Metapleuron with posteroventral third entirely covered with short, dense, white setae (Fig. 59); fore wing with visible marginal fringe (Fig. 60)..... ..... ***F. communis*** **sp. nov.**

– Metapleuron with posteroventral third not entirely covered by setae (Figs 106, 112, 265); fore wings with short, hardly visible marginal fringe (Figs 107, 114, 267).....**20**

20 Metapleuron with a line of stout setae along the dorsal and posterior margins; fore wing dark medially; OOL equal to or less than OD..... .....***F. vanharteni*** **Buhl, 2010**

– Metapleuron with only sparse setae, not arranged in a continuous line; fore wings uniformly hyaline; OOL equal to about 2 OD ....***F. hofferi*** **Kozlov, 1978**

21 Fore wings with long, visible marginal fringe; T1 with three pairs of sublateral setae (Fig. 38); metapleural carina with a broad flange of foamy structure; metapleural epicoxal area with a flange of foamy structure over the base of hind coxa..... ***F. bohemica*** **sp. nov.**

– Fore wings with hardly visible marginal fringe; T1 with two pairs of sublateral setae; metapleural carina with a very narrow crease of foamy structure; metapleural epicoxal area without a flange of foamy structure over the base of hind coxa **22**

22 T2 square or nearly so, at least 4 times as long as T1; notauli parallel; dorsal mesopleuron with numerous delicate, transverse and dense striae; lateral pro-

notal area sculptured in dorsal two thirds; tibia and scape dark brown ..... ***F. platystasioides* sp. nov.**

– T2 transverse, at most 3 times as long as T1; notauli diverging anteriorly; dorsal mesopleuron with two transverse striae bordering a smooth space; lateral pronotal area sculptured in dorsal third; tibia and scape yellow ..... ***F. lisenchiae* sp. nov.**

23 Transscutal articulation incomplete (Fig. 293), visible only laterally; wings micropterous, only about twice as long as tegula ..... ***F. sashai* sp. nov.**

– Transscutal articulation complete; wings macropterous or brachypterous, extending posteriorly beyond propodeum **4**

24 Lateral propodeal carinae not connected by a transverse carina (Figs 88a, 294, 295); metasomal depression square or longer than wide **25**

– Lateral propodeal carinae sometimes connected by a transverse carina (Figs 43, 66); metasomal depression strongly transverse **26**

25 Body flat, strongly depressed dorsoventrally; width of mesosoma at least 2.7 times its height; metascutellum not visible dorsally, covered by posterior margin of mesoscutellum; mesopleuron without large circular depression; transepisternal line complete (Fig. 244); notaulus entirely absent; dorsal axillar area small, hardly visible ..... ***F. synergorum* (Kieffer, 1921)**

– Body not depressed dorsoventrally; width and height of mesosoma nearly equal; metascutellum visible dorsally; mesopleuron with a large circular depression (Fig. 91); transepisternal line absent; notauli indicated by the absence of setation; dorsal axillar area, large, conspicuous ..... ***F. hirta* sp. nov.**

26 Transepisternal line present (Fig. 67); anterior pits of T2 strongly transverse, medially contiguous or nearly so; median carina present between lateral propodeal carinae ..... ***F. filicornis* Buhl, 2014**

– Transepisternal line absent; anterior pits of T2 ovate, distinct separated; median carina between lateral propodeal carinae variable **27**

27 T2 distinctly longer than wide (Fig. 43); OOL around 2 times as long as OD **28**

– T2 about as long as wide (Fig. 165), or wider than long; OOL 0.8–1.2 times as long as OD **29**

28 Apex of fore wing not extending beyond the middle of T2; ventral third of mesopleuron without longitudinal striae; metapleural sulcus present; metascutellum visible dorsally ..... ***F. brevialis* sp. nov.**

– Apex of fore wings surpassing end of metasoma; ventral third of mesopleuron longitudinally striate; metapleural sulcus absent; metascutellum not visible dorsally, covered by posterior margin of mesoscutellum ..... ***F. flaviabdominalis* Veenakumari et al., 2018**

29 Fore wing with long marginal fringe (Figs 153, 158, 160) ..... ***F. polita* Buhl, 1998**

– Fore wing with short marginal fringe (Fig. 165, 169) ..... ***F. politoides* sp. nov.**

Species descriptions

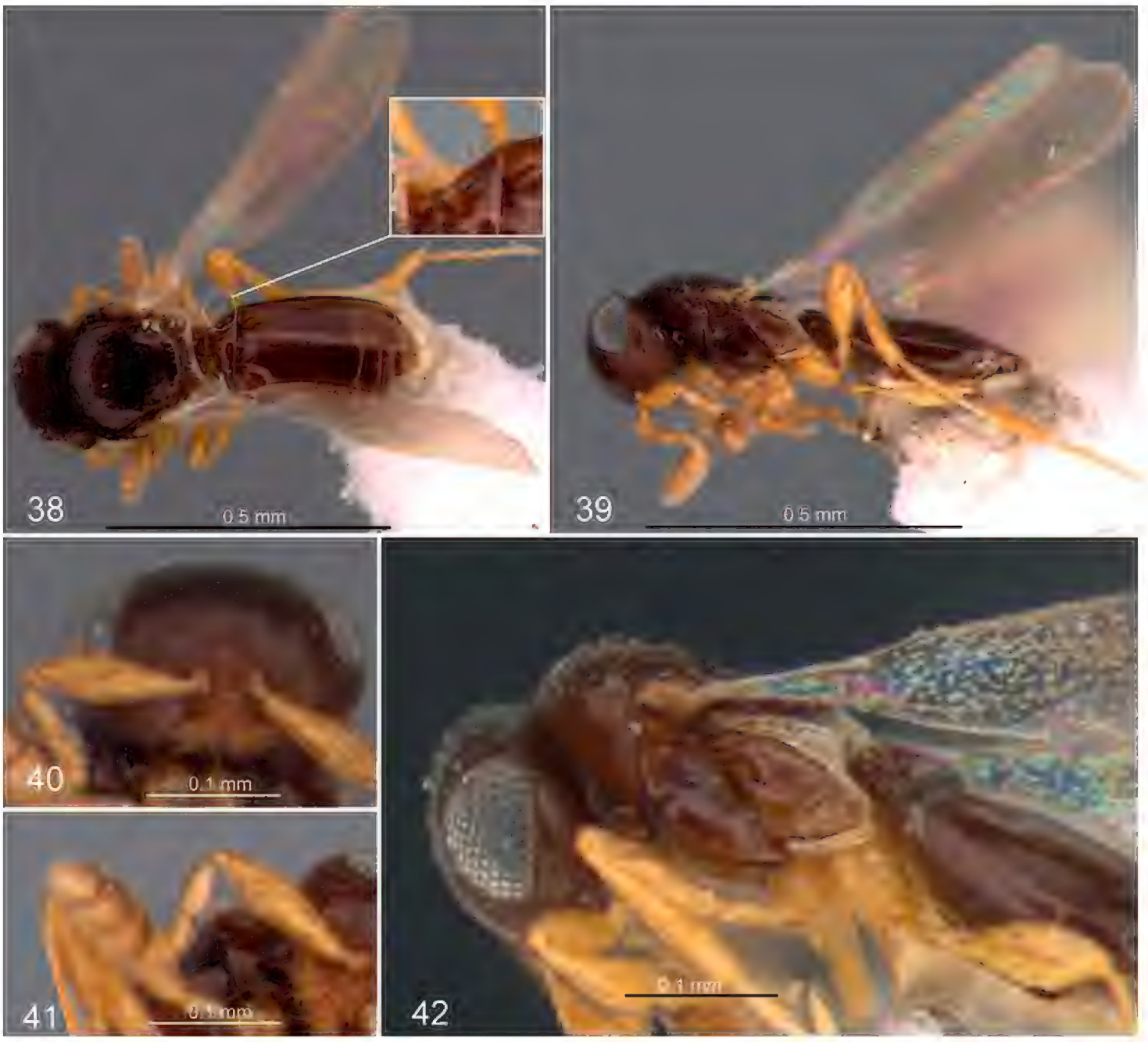
1. *Fidiobia bohemica* Popovici, Masner & Lahey, sp. nov.

https://zoobank.org/1AE01224-E095-4058-88D3-CB4A651636A3
Figs 38–42, 298

Description. Female. Body length: 0.7 mm. Colour of body: melanic (Figs 38, 39).

Head (Fig. 40). Colour of head: dark brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter (OOL 1.1 times as long as ocellar diameter). Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture of the rest of frons, but more transverse. Epitorular carina: absent. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 41). Colour of A1: light brown. Colour of clava: slightly darker than the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): unknown.

Mesosoma (Figs 38, 42). Colour of mesosoma: dark brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: almost totally sculptured. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: 3–4 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: unknown. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: free, converging with metapleural



Figures 38–42. *Fidiobia bohemica*: **38** habitus, dorsal view (Holotype) **39** habitus, lateral view **40** head and toruli **41** antenna **42** head and mesosoma, lateral view.

carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: short setae on a longitudinal row. Setation of ventral metapleural area: dense, short hairs on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a pit. Mesopleural carina: present. Metapleural sulcus: present. ***Wings.*** macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: yellow. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: yellow. Colour of hind femora: light brown. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma. Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 3 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3 –T5: the same as T2.

Male. unknown.

Etymology. Named after the country where the type material was collected. Noun in apposition.

Material examined. 2♀. Czech Republic: ***Holotype*** 1♀, Orlické Hory, Trčkov, Bukačka res., 50.336°N, 16.372°E, 28.vi–18.vii.1994, leg. Macek J. (MT) (CNCI). ***Paratype*:** 1♀, Orlické Hory, Trčkov, Bukačka res., 50.336°N, 16.372°E, 28.vi–18.vii.1994, leg. Macek J. (MT) (CNCI).

Distribution. Czech Republic (Fig. 298).

Diagnosis. *Fidiobia bohemica* is close to *F. communis* and *F. hofferi* because of the presence of notauli, the visible metascutellum and the reticulate-coriaceous to alutaceous sculpture of the frons. *Fidiobia bohemica* differs from these species by the presence of three pairs of sublateral setae on T1 (only two in *F. communis* and *F. hofferi*) and the absence of epitorular carinae on the frons (present in *F. communis* and *F. hofferi*).

2. *Fidiobia brevialis* Popovici, Masner & Lahey, sp. nov.

https://zoobank.org/BE867A1A-C8FE-45BC-A4F6-AFCB8443E0E9

Figs 43–47, 299

Description. Female. Body length: 0.8 mm. Colour of body: xanthic (Figs 43, 44).

Head (Figs 45, 46). Colour of head: brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL around 2 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture of the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 47). Colour of A1: yellow. Colour of clava: almost similar to rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): unknown.

Mesosoma (Figs 43, 44). Colour of mesosoma: light-brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape

Figures 43–47. *Fidiobia brevialis*: **43** habitus, dorsal view (Holotype) **44** habitus, lateral view **45** head, dorsal view **46** head, frontal view **47** antenna (♀).

of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: present, complete. Fovea on scuto-scutellar sulcus: absent. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ven-

tral metapleural area: present. Setation of dorsal metapleural area: sparse, long setae in 2–3 longitudinal rows. Setation of ventral metapleural area: dense, long setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, incomplete. ***Wings*:** brachypterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs*:** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Figs 43, 44): Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: light brown. Lateral setae of T1: 2 pairs. Colour of T2: light brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. The species name is derived from Latin words "*brevis*" and "*alis*", meaning "short wings".

Material examined. 2♀. Japan: ***Holotype*** 1♀, Hokkaido Tomuraushi area, 43.45°N, 142.91°E, 13.viii.1996, leg. Masner L. (SS) (CNCI). ***Paratype*:** 1♀, Hokkaido, Sapporo Forest Reservation, 43.072°N, 141.202°E, 8.viii.1989, leg. Sharkey M. (SS) (CNCI).

Distribution. Japan (Fig. 299).

Biology. unknown.

Diagnosis. *Fidiobia brevialis* and *F. sashai* are the only Palearctic species of the genus that are brachypterous and lack notauli. These species can be separated by the length of the fore wings (hardly longer than the tegula in *F. sashai* and surpassing the middle of T2 in *F. brevialis*) and the length of the transscutal articulation (incomplete in *F. sashai* and complete in *F. brevialis*).

3. *Fidiobia brevinotaula* Veenakumari, Popovici & Buhl, 2018

Figs 48–55, 300

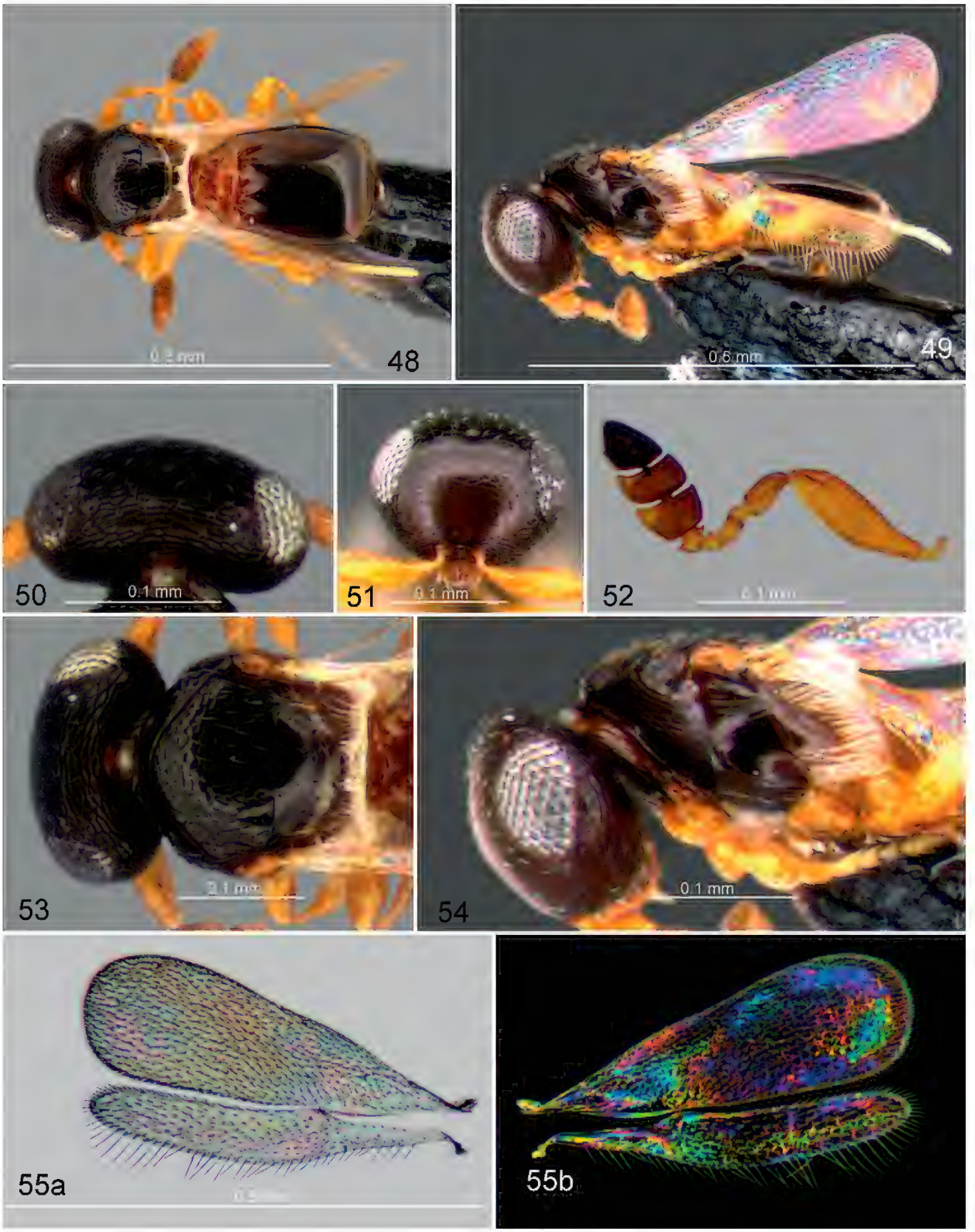
Fidiobia brevinotaula Veenakumari, Popovici & Buhl, 2018: 557.

Description. Female (Figs 48, 49). Body length: 0.6 mm. Colour of body: melanic, T1 lighter than the rest of body (Fig. 48).

Head (Figs 50, 51). Colour of head: black. Sculpture of head: reticulate coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter:

OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture of the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 52). Colour of A1: yellow. Colour of clava: slightly darker than the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 53, 54). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: smooth, almost absent in posterior half, imbricate coriaceous anteriorly. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae surpassing the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of metapleuron: dense, long setae on 3–4 rows along the metapleural carina, covering the foamy structure of metapleural carina, anteriorly with triangular glabrous area. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: short, anteroventrally located near mesopleral carina. Mesopleural carina: present. Metapleural sulcus: not visible. ***Wings*** (Fig. 55a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of



Figures 48–55. *Fidiobia brevinotaula*: **48** habitus, dorsal view (OPPC0073) **49** habitus, lateral view **50** head, dorsal view **51** head, frontal view **52** antenna (♀) **53** mesosoma, dorsal view **54** head and mesosoma, lateral view **55a** wings **55b** WIP.

fore tibia: yellow. Colour of fore tarsus: yellow with darker pretarsus. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow with darker pretarsus. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow with darker pretarsus.

Metasoma (Fig. 48): Posterior of T2 some or all tergites may be under T2. Shape of T1: trapezoidal. Colour of T1: light brown. Lateral setae of T1: 2 pairs. Colour of T2: dark-brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Material examined. 5♀. Russia: 1♀, Primorsky Krai, Ussuriysk District, Gornotayozhnoye, 44.1°N, 132.41°E, 4–10.viii.1999, leg. Michailovskaya MV. (YPT) (CNCI); 3♀, Primorsky Krai, Ussuriysk District, Gornotayozhnoye, 44.1°N, 132.41°E, 16–18.ix.1999, leg. Michailovskaya MV. (YPT) (CNCI).

South Korea: 1♀, Gyeongsan-si, Daehak-ro 280, Yeungnam University, 35.82119°N, 128.7634°E, 14.viii.2016, Fusu L. (YPT) (OPPC0073).

Distribution. India (Veenakumari et al. 2018), Russia, South Korea (Fig. 300).

Diagnosis. *Fidiobia brevinotaula* is a distinct species based on the abbreviated notauli; the transaxillar carina and horizontal part of the dorsal axillar area that are not visible; the presence of foamy structures on the lateral propodeal carinae; the long, strong, white, dense setae on the metapleuron; and the minute size of specimens. It is close habitually to *F. insoonae*, but these species can be separated by the marginal setae of fore wings (short in *F. brevinotaula* and long in *F. insoonae*) and by the setation of metapleuron (there are long, strong, dense setae in *F. brevinotaula* and short, tiny, sparse setae in *F. insoonae*).

4. *Fidiobia communis* Popovici, Masner & Talamas, sp. nov.

https://zoobank.org/CF0AA5FE-1EFE-4EDA-A166-46B3487E21DD

Figs 56–60, 301

Description. Female. Body length: 0.8–0.9 mm. Colour of body: melanic (Figs 56a, 58).

Head (Fig. 56a). Colour of head: brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 56b). Colour of A1: light brown. Colour of clava: slightly darker than the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 56a, 59). Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on

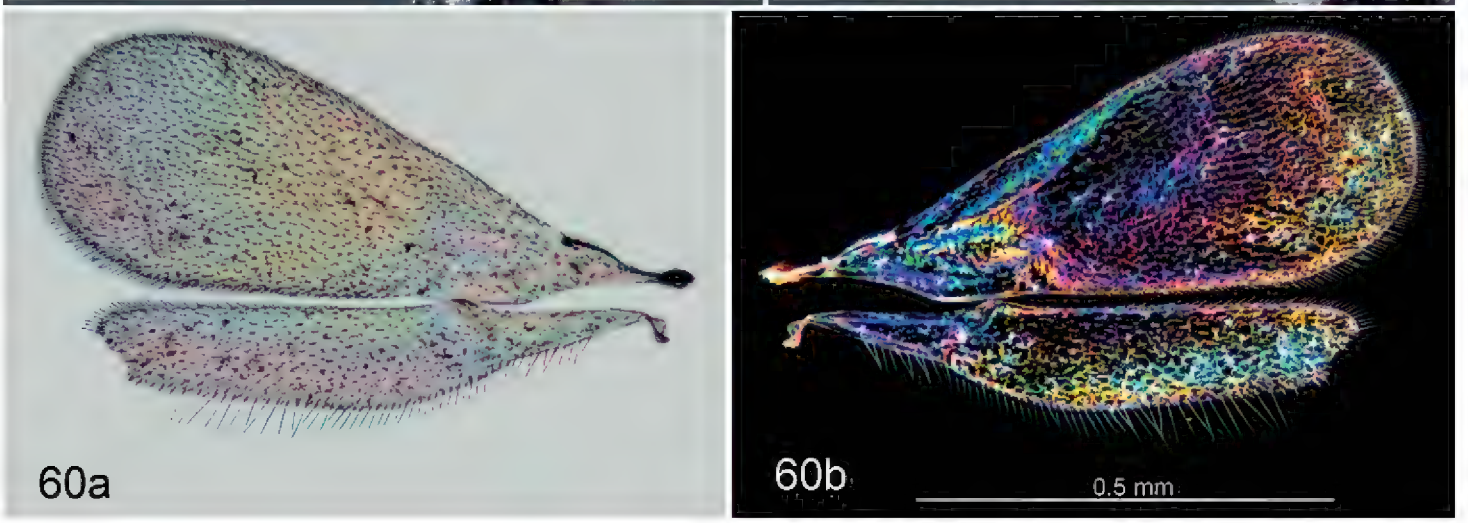
the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: free, converging with metapleural carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: sparse, long setae in 2–3 longitudinal rows. Setation of ventral metapleural area: dense, long setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, from incomplete to complete. ***Wings*** (Figs 60a,b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs***. Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma. Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male (Fig. 57a): similar to the female, differing in the structure of the antenna (Fig. 57b).

Etymology. This species is named "*communis*" because of the absence of any peculiar or striking characters.

Material examined. 6♀ and 1♂. Romania: ***Holotype*** 1♀, Suceava, Călimani Mts., road of Maria Teresa, 47.12346°N, 25.20249°E, 13–20.vii.2012, leg. Popovici O. (SS) (OPPC0577).



Figures 56–60. *Fidiobia communis*: **56a** female, habitus, dorsal view (Holotype) **56b** antenna (♀) **57a** male, habitus, dorsal view (OPPC0578) **57b** antenna (♂) **58** female, habitus, lateral view **59** female, mesosoma, lateral view **60a** wings **60b** WIP.

Paratypes: Czech Republic: 1♀, Bohemia, Celákovice Lipovka Res., 50.177°N, 14.759°E, 2–19.vi.1994, leg. Macek J. (MT) (CNCI).

Estonia: 2♀, 1.5 km NE Sööru, 58.66111°N, 26.88531°E, 4–11.vii.2011, leg. Soon V. (SN) (OPPC0664, 0665).

Romania: 1♂, Suceava, Călimani Mts., road of Maria Teresa, 47.12346°N, 25.20249°E, 13–20.vii.2012, leg. Popovici O. (SS) (OPPC0578).

Ukraine: 1♀, Transcarpathia, Svydovets, 2–3 km NW of Kvasy, 48.15247°N, 24.26621°E, 7.v–5.vi.2014, leg. Varga O. (TT) (OPPC0230); 1♀, Transcarpathia,

Svydovets, 2–3 km NW of Kvasy, 48.15247°N, 24.26621°E, 5–29.vi.2014, leg. Varga O. (TT) (OPPC0146).

Distribution. Czech Republic, Estonia, Romania, Ukraine (Fig. 301).

Diagnosis. *Fidiobia communis* is close to *F. hofferi* because of its general habitus, the metascutellum that is visible in dorsal view and the presence of epitorular carinae. These two species differ mainly by the sculpture of the dorsal mesopleuron (reduced in *F. hofferi* and extending to the middle of the mesopleuron in *F. communis*), setation of the ventral metapleural area (few, sparse setae in *F. hofferi* and dense, long setae in *F. communis*) and the length of the marginal setae on the fore wings (very short, hardly visible in *F. hofferi* and clearly visible in *F. communis*).

5. *Fidiobia filicornis* Buhl, 2014

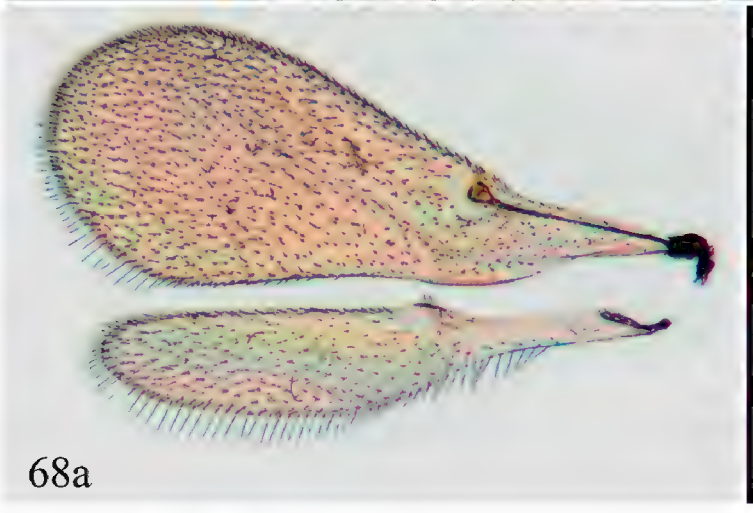
Figs 61–68, 296, 302

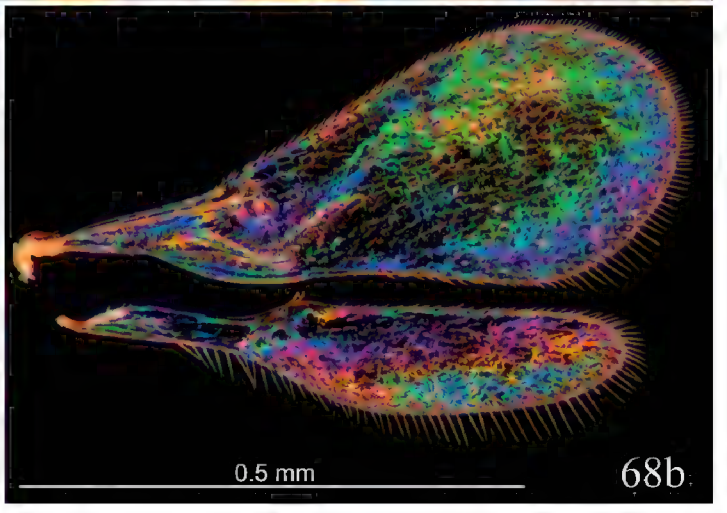
Fidiobia filicornis Buhl, 2014: 74.

Description. Female. Body length: 0.7–08 mm. Colour of body: bicoloured, head and mesosoma dark brown to brown, metasoma brown to reddish brown with T1 and the apex of T6 lighter (Figs 61, 62).

Head (Figs 66, 67). Colour of head: dark brown. Sculpture of head: reticulate rugose. Sculpture of occiput: reticulate rugose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: reticulate rugose. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons. Epitorular carina: absent. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 64). Colour of A1: light brown. Colour of clava: hardly differs from the rest of the antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 66, 67). Colour of mesosoma: dark brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: present. Sculpture of internotaular area: smooth reticulate. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: present laterally. Mesoscutellum: convex. Shape of mesoscutellum: subrectangular. Axillular





Figures 61–68. *Fidiobia filicornis*: **61** female, habitus, dorsal view (OPPC0074) **62** female, habitus, lateral view **63** male, habitus, dorsal view (OPPC0045) **64** antenna (♀) (OPPC0517) **65** antenna (♂) (OPPC0818) **66** head and mesosoma, dorsal view **67** head and mesosoma, lateral view **68a** wings (OPPC0517) **68b** WIP.

carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: present. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: fused with lateral propodeal carina. Foamy structure on plica: present, as a single flange. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: short setae uniformly distributed. Setation of ventral metapleural area: dense, short hairs on the entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: complete, almost straight. Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 68a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs***. Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma (Fig. 61): Tergites posterior of T2 exposed and clearly visible. Shape of T1: subrectangular. Colour of T1: light brown. Lateral setae of T1: unknown. Colour of T2: brown. Shape of T2: transverse. Anterior pits of T2: strongly transverse almost fused medially. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2, but the apex of T6 is lighter.

Male (Figs 63, 69–72): Similar to female, but differing in the structure of the antenna (Fig. 65).

Material examined. 86♀ and 39♂. Togo: ***Holotype*** ♂, (Figs 69–73), (ZMUC).

China: 1♀ and 2♂, Beijing Prov., Mentougo 39.987°N, 115.5246°E, dry meadow, 28.vii.2002, leg. Melika G. (CNCI).

South Korea: 2♀, Jirisan, Hamyang-gun, Macheon-myon, Samjeong-li, 35.3486°N, 127.6392°E, 24.viii–15.ix.2003, leg. Tripotin P. (MT) (CNCI); 9♀ and 5♂, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripotin P. (MT) (OPPC0044, 0506, 0048, 0052, 0051, 0509, 0043, 0046, 0505 and OPPC0503, 0508, 0507, 0045, 0504); 15♀ and 4♂, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.vii–21.viii.2007, leg. Tripotin P. (MT) (OPPC0520, 0518, 0513, 0512, 0517, 0514, 0511, 0510, 0515, 0074, 0333, 0312, 0311, 0523, 0522 and OPPC0516, 0521, 0519, 0071); 5♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 12.vi–11.vii.2004, leg. Tripotin P. (MT) (OPPC 0736, 0740, 0739, 0737, 0646); 32♀ and 17♂, Gangwon-do, Chuncheon

Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 11.vii–7.viii.2004, leg. Tripotin P. (MT) (OPPC0772, 0771, 0762, 0763, 0794, 0769, 0770, 0639, 0642, 0797, 0796, 0779, 0780, 0758, 0745, 0746, 0747, 0753, 0754, 0756, 0777, 0776, 0775, 0774, 0773, 0751, 0767, 0766, 0761, 0641, 0644, 0750 and OPPC0819, 0818, 0757, 0759, 0760, 0479, 0478, 0480, 0481, 0795, 0065, 0748, 0778, 0765, 0768, 0066, 0752); 3♀ and 2♂, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 14.vii–7.viii.2004, leg. Tripotin P. (MT) (OPPC0411, 0409, 0410 and OPPC0407, 0408); 8♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 7.viii–14.ix.2004, leg. Tripotin P. (MT) (OPPC0419, 0414, 0415, 0413, 0412, 0416, 0742, 0476); 4♀ and 2♂, Jirisan, Hamyang, Songjeon-li, Munsu-sa, 35.41232°N, 127.7303°E, 28.vii–16.viii.2004, leg. Tripotin P. (MT) (OPPC0498, 0497, 0495, 0494 and OPPC0496, 0501); 4♀ and 1♂, Jirisan, Hamyang, Songjeon-li, Munsu-sa, 35.41232°N, 127.7303°E, 16.viii–5.ix.2004, leg. Tripotin P. (MT) (OPPC0683, 0063, 0062, 0684 and OPPC0689); 2♀, Jirisan, Hamyang, Songjeon-li, Munsu-sa, 35.41232°N, 127.7303°E, 17.viii–5.ix.2005, leg. Tripotin P. (MT) (OPPC0744, 0743); 1♀ and 2♂, Chungnam, Keum-san, Nami-myeon, Seokdong, Pohyeonsa, 36.05823°N, 127.4537°E, 31.vii–28.viii.2005, leg. Tripotin P. (MT) (OPPC0589 and OPPC0070, 0588); 2♂, Chungbuk, Okcheon-gun, Dongi-myeon, Soesan-li, 36.16594°N, 127.6124°E, 8–23.vii.2004, leg. Tripotin P. (MT) (OPPC0488, 0489); 1♂, Chungbuk, Okcheon-gun, Dongi-myeon, Soesan-li, 36.16594°N, 127.6124°E, 28.vi–8.vii.2004, leg. Tripotin P. (MT) (OPPC0488, 0489); 1♂, Gyeongsan-si, Daehak-ro 280, Yeungnam University, 35.82119°N, 128.7634°E, 14–15.viii.2016, Fusu L. (YPT) (OPPC0072).

Distribution. Togo (Buhl 2014), China, South Korea (Fig. 302).

Biology. unknown.

Diagnosis. *Fidiobia filicornis* is the only known Palearctic species with 9-merous antenna in the female and 10-merous antenna in the male. As is typical for *Fidiobia*, the female antenna is clavate and the male antenna is clubbed, but in the male of *F. filicornis* the antenna is almost filiform as in *F. longiclava* or *F. vladlubomiri* (both species with 10-merous antenna in male and female). Another distinctive character among the Palearctic species with 9-merous antennae is the presence of the transepisternal line, which is narrow, deeply incised, transverse and nearly complete in *F. filicornis*. This species is not known from the Oriental region (Veenakumari et al. 2018), but a new species, *Fidiobia setosa* was recently described from India and is considered a close relative of *F. filicornis*. These two species can be easily separated because of the presence of a hyperoccipital carina and 10-merous antennae in *F. setosa*.

Comments. *Fidiobia filicornis* was described from the Afrotropical region (Togo) by Buhl (2014). It was described from a singleton male specimen with distinctive filiform antenna with 10-antennomeres and without notauli. At the moment, there are no data concerning the distribution or the abundance of this species in the Afrotropical region, but it is one of the best represented species in our Palearctic material. The specimens from China are from the Sino-Japanese region but do not differ morphologically from South Korean specimens. The difference between our material and the type specimen is in the sculpture of mesoscutum, which is smoother in the latter.

Figures 69–73. Holotype of *Fidiobia filicornis*: **69, 70** habitus, dorsal view **71** habitus, lateral view **72** head and antenna **73** data labels.

6. *Fidiobia flaviabdominalis* Veenakumari, Popovici & Buhl, 2018

Figs 74–79, 303

Fidiobia flaviabdominalis Veenakumari, Popovici & Buhl, 2018: 556, 568.

Description. Female. Body length: 0.5 mm. Colour of body: xanthic, head and mesosoma brown, metasoma light brown to yellow (Figs 74, 75).

Head (Figs 77, 78). Colour of head: light brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse alutaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL around 2 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture on the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 76). Colour of A1: light brown. Colour of clava: strongly differs from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

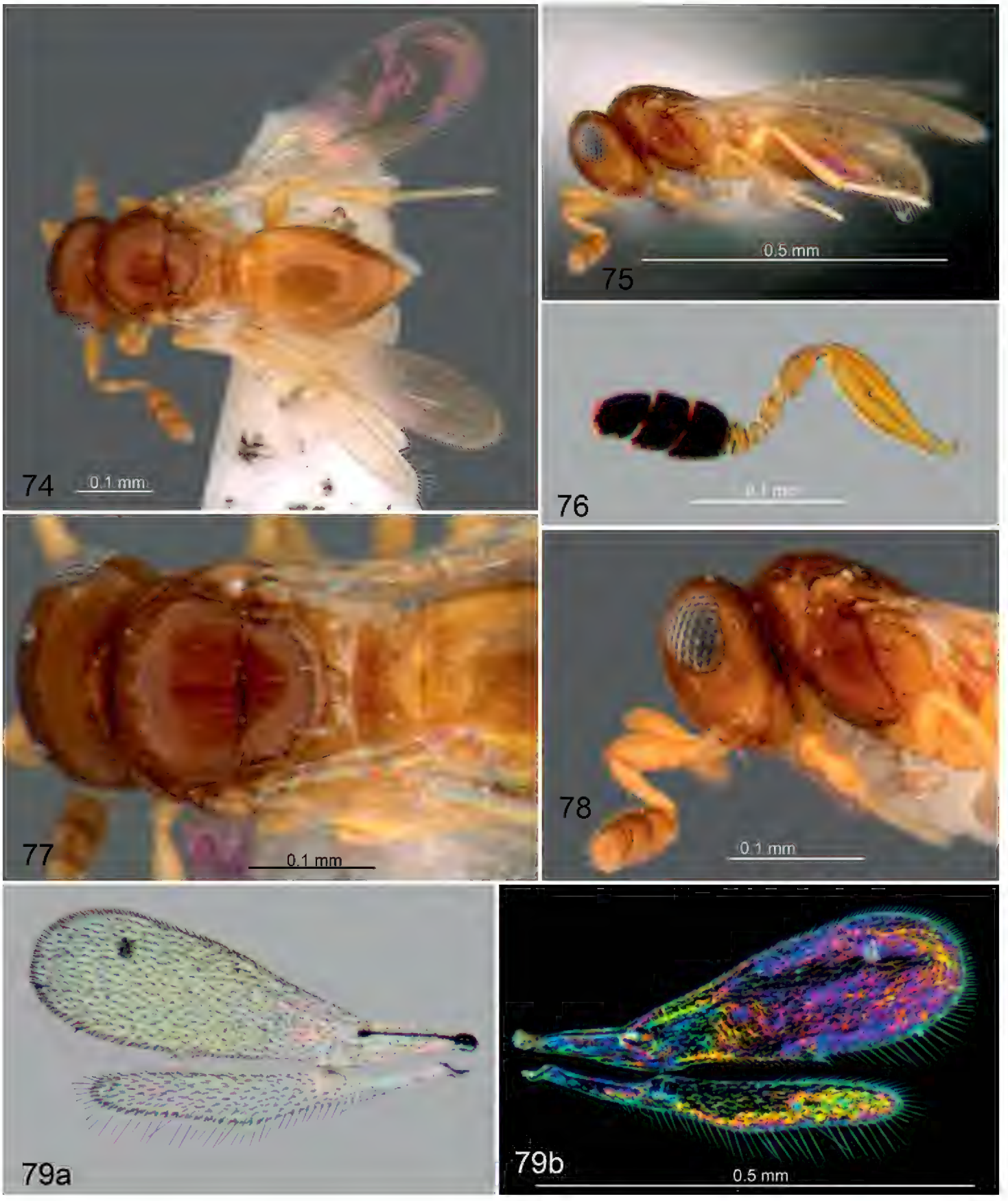
Mesosoma (Figs 77, 78). Colour of mesosoma: light brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders.

Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: smooth to coriaceous. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: free, converging with metapleural carina. Foamy structure on plica: present. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: sparse, long setae on entire surface, uniformly distributed. Setation of ventral metapleural area: sparse, long setae on the entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, incomplete. ***Wings*** (Fig. 79a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Fig. 74): Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: light brown. Lateral setae of T1: 2 pairs. Colour of T2: light brown apically and darker basally. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: darker than T2.

Material examined. 36♀ and 1♂. Japan: 2♀, Kyushu, Fukuoka Mt. Hiko, 33.1259°N, 130.7876°E, 21–29.vii.1989, leg. Takeno K. and Sharkey M. (MT) (CNCI); 1♂, Aichi Pref, Mt Sanage-yama, 35.182°N, 137.133°E, 25–31.vii.1989, leg. Takano A. (MT) (CNCI).

South Korea: 25♀, Jeollabuk-do, Buan-gun Samae-myeon Yuyu village, 35.4191°N, 127.2755°E, 5.vii–14.viii.2007, leg. Tripotin P. (MT) (OPPC0785, 0786, 0787, 0788, 0793, 0792, 0789, 0784, 0790, 0791, 0805, 0809, 0810, 0811, 0806,



Figures 74–79. *Fidiobia flaviabdominalis*: **74** habitus, dorsal view (OPPC0405) **75** habitus, lateral view (OPPC0786) **76** antenna (♀) (OPPC0647) **77** mesosoma, dorsal view **78** mesosoma, lateral view **79a** wings (OPPC0647) **79b** WIP.

0405, 0406, 0647, 0783, 0807, 0404, 0808, 0782, 0477, 0369); 1♀, Jeollabuk-do, Buan-gun Samae-myeon, Yuyu village, 35.4191°N, 127.2755°E, 21.iv–27.v.2007, leg. Tripotin P. (MT) (OPPC0418); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 20.v–19.vi.2007, leg. Tripotin P. (MT) (OPPC485); 2♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripo-

tin P. (MT) (OPPC0056 – no head, 0054); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 21.viii–25.ix.2007, leg. Tripotin P. (MT) (OPPC0545); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 25.ix–17.xi.2007, leg. Tripotin P. (MT) (OPPC0542); 1♀, Chungbuk, Okcheon-gun Dongi-myeon, Soesan-li, 36.2764°N, 127.6131°E, 8–23.vii.2004, leg. Tripotin P. (MT) (OPPC0728); 2♀, Jirisan, Hamyang, Songjeon-li, Munsu-sa, 35.41232°N, 127.7303°E, 28.vii–16.viii.2004, leg. Tripotin P. (MT) (OPPC0499, 0500).

Distribution. India (Veenakumari et al. 2018), Japan, South Korea (Fig. 303).

Biology. unknown.

Diagnosis. *Fidiobia flaviabdominalis* is superficially similar in size and general habitus to *F. insoonae*, *F. polita* and *F. politoides*. It differs from *F. insoonae* mainly by of the absence of notauli (present in *F. insoonae*) and to *F. polita* and *F. politoides* because of the length of T2 (T2 is longer than wide in *F. flaviabdominalis* and wider than long in *F. polita* and *F. politoides*).

Comments. *Fidiobia flaviabdominalis* is one of the smallest species of the genus in the Palearctic region. It is peculiar among Palearctic *Fidiobia* because of its reduced size and the light color. Our specimens differ from the original description by the presence of longitudinal striae on the lower third of the mesopleuron and A4 longer than A3 in females.

7. *Fidiobia gallica* Masner, Popovici & Talamas, sp. nov.

https://zoobank.org/A403E05B-AAEA-4C91-AD59-F11214D6DF6B

Figs 80–87, 304

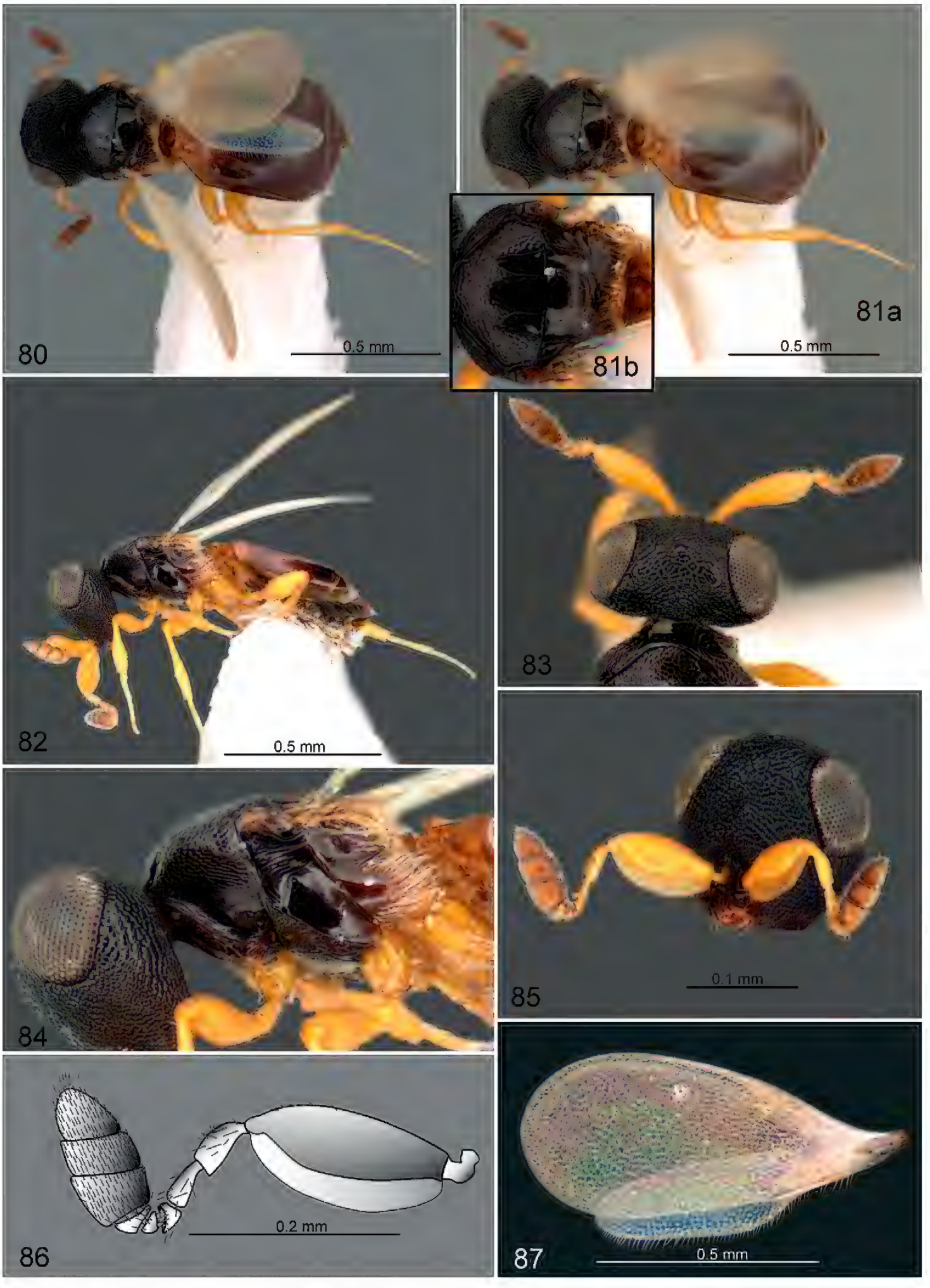
Description. Female. Body length: 1.1 mm. Colour of body: bicoloured, head and mesosoma black, metasoma brown with T1 lighter (T1 light brown to reddish) (Figs 80–82).

Head (Figs 83–85). Colour of head: black. Sculpture of head: reticulate-rugose. Sculpture of occiput: reticulate-rugose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate rugose. Sculpture of frons immediately dorsal to toruli: reticulate rugose. Epitorular carina: absent. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Figs 85, 86). Colour of A1: yellow. Colour of clava: striking differs by the colour of the rest of antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: strongly compressed laterally. Ventral (inner) lamella on A1: present along the ventral side of A1, at most as wide as A1. Length of A3 of female: subequal to length of A2. Sensillar formula (A7:A8:A9): unknown.

Mesosoma (Figs 81b, 84). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a wide groove along the anterior rim of prono-

tum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: half the length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: smaller than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: absent. Foamy structure on transverse carina between lateral propodeal carinae: NA. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: only present posteriorly. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, long setae in 3–4 longitudinal rows. Setation of ventral metapleural area: dense, long setae on posterior half, a glabrous triangular area anteriorly. Longitudinal striation on dorsal mesopleuron: present, extending ventrally to the transepisternal line. Transepisternal line: visible as a groove on the anteroventral mesopleuron intersecting ventrally with mesopleural carina and dorsally with a pit. Mesopleural carina: present. Metapleural sulcus: present, complete. ***Wings*** (Fig. 87): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: as short as tegula. Spectral veins on fore wing: absent. Marginal setae of fore wing: absent. Disc of fore wing: with reticulate sculpture. ***Legs***. Colour of fore tibia: yellow. Colour of fore tarsus: yellow with darker pretarsus. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow with darker pretarsus. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow with darker pretarsus.

Metasoma (Figs 81a, 82): Tergites posterior of T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: reddish brown. Lateral setae of T1: 3 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.



Figures 80–87. *Fidiobia gallica*: **80, 81a** habitus, dorsal view (Holotype) **81b** mesosoma, dorsal view **82** habitus, lateral view **83** head, dorsal view **84** mesosoma, lateral view **85** head and antenna **86** antenna **87** wings.

Male. unknown.

Etymology. This species is named "*gallica*", meaning "French", for the country where the specimen was collected. This species was named after the ancient name of France.

Material examined. 1♀. France: ***Holotype*** 1♀, Montpellier, 43.73°N, 3.74°E, 12–18.vii.1981, leg. Vayssières JF. (CNCI).

Distribution. France (Fig. 304).

Biology. unknown.

Diagnosis. *Fidiobia gallica* is one of the most peculiar species of the genus because of the lamellate scape, elongate A3, reticulate pattern on the disc of the fore wing and a narrow metasomal depression (width of metasomal depression is less than the length of the lateral propodeal carina) bordered by lateral propodeal carinae that are nearly parallel and are elevated posteriorly. The combination of these four characters differentiates this species from the remainder of the Palearctic fauna.

Comments. The development of the ventral lamella of A1 is found in other Palearctic platygastrids, including *Iphitrachelus* Walker and *Amblyaspis* Förster. In other regions, this can be found in *Sacespalus* Kieffer, *Platygastoides* Dodd, *Plutomerus* Masner and Huggert, and *Pulchrisolia* Szabó. The reticulate fore wing can also be found an undescribed species from Madagascar (Z. Lahey, *unpublished data*).

8. *Fidiobia hirta* Popovici, Masner & Talamas, sp. nov.

https://zoobank.org/7379AD45-4FD4-42E9-B7D9-73E8C11D63DF

Figs 88–91, 305

Description. Female. Body length: 1.1 mm. Colour of body: melanic (Figs 88a, 89).

Head (Fig. 90). Colour of head: dark brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse alutaceous. Ocellar prominence: present. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons, but more transverse. Epitorular carina: absent. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 88b). Colour of A1: brown. Colour of clava: almost similar to rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 88a, 91). Colour of mesosoma: dark brown. Mesosoma: cylindrical, not compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: convex.

Parapsidal lines: absent. Sculpture of internotaular area: smooth, almost absent in posterior half, imbricate coriaceous anteriorly. Notauli: present as a change in sculpture or pilosity. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: shorter than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: present only laterally. Fovea on scuto-scutellar sulcus: present on the entire length of scutelo-scutellar sulcus. Mesoscutellum: convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae not abutting posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: present. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: absent. Foamy structure on transverse carina between lateral propodeal carinae: NA. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: divergent posteriorly. Foamy structure on lateral propodeal carina: absent. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: short setae on entire surface, uniformly distributed. Setation of ventral metapleural area: short setae uniformly distributed on the entire surface. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a pit. Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 89): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: brown, with lighter basal and apical ends. Colour of fore tarsus: light brown with darker pretarsus. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: brown with lighter basal and apical ends. Colour of middle tarsus: light brown with darker pretarsus. Colour of hind femora: brown with lighter basal and apical ends. Colour of hind tibiae: brown with lighter basal and apical ends. Colour of hind tarsus: light brown with darker pretarsus.

Metasoma (Fig. 88a): posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 3 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. This species is named for the Latin term for hairy, "*hirta*".

Material examined. 5♀. Russia: ***Holotype*** 1♀, Primorsky Krai, Ussuriysk District, Gornotayozhnoye, 44.1000°N, 132.4167°E, 4–10.viii.1999, leg. Michailovskaya M.V. (YPT) (CNCI).

***Paratypes*:** South Korea: 2♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, in forest, 34.6422°N, 127.6285°E, 25.v–14.vi.2003, leg Tripotin P. (MT); 1♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 25.v–14.vi.2003, leg. Tripotin P. (MT) (OPPC0067), 1♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 17.viii–5.ix.2003, leg. Tripotin P. (MT) (OPPC0069).

Distribution. This species was encountered only in Far East Russia and South Korea (Fig. 305).

Biology. unknown.

Diagnosis. *Fidiobia hirta* differs from other species in the genus because the body is not flattened dorsoventrally, the mesoscutum and mesoscutellum are convex in lateral view, the metasomal depression is large, the lateral propodeal carinae diverge posteriorly, and T3 is at least as long as its maximum width.

Figures 88–91. *Fidiobia hirta*: **88a** habitus, dorsal view (Holotype) **88b** antenna **89** habitus, lateral view **90** head, dorsal view **91** head and mesosoma, lateral view.

9. *Fidiobia hispanica* Popovici & Buhl, 2010

Figs 92–102, 306

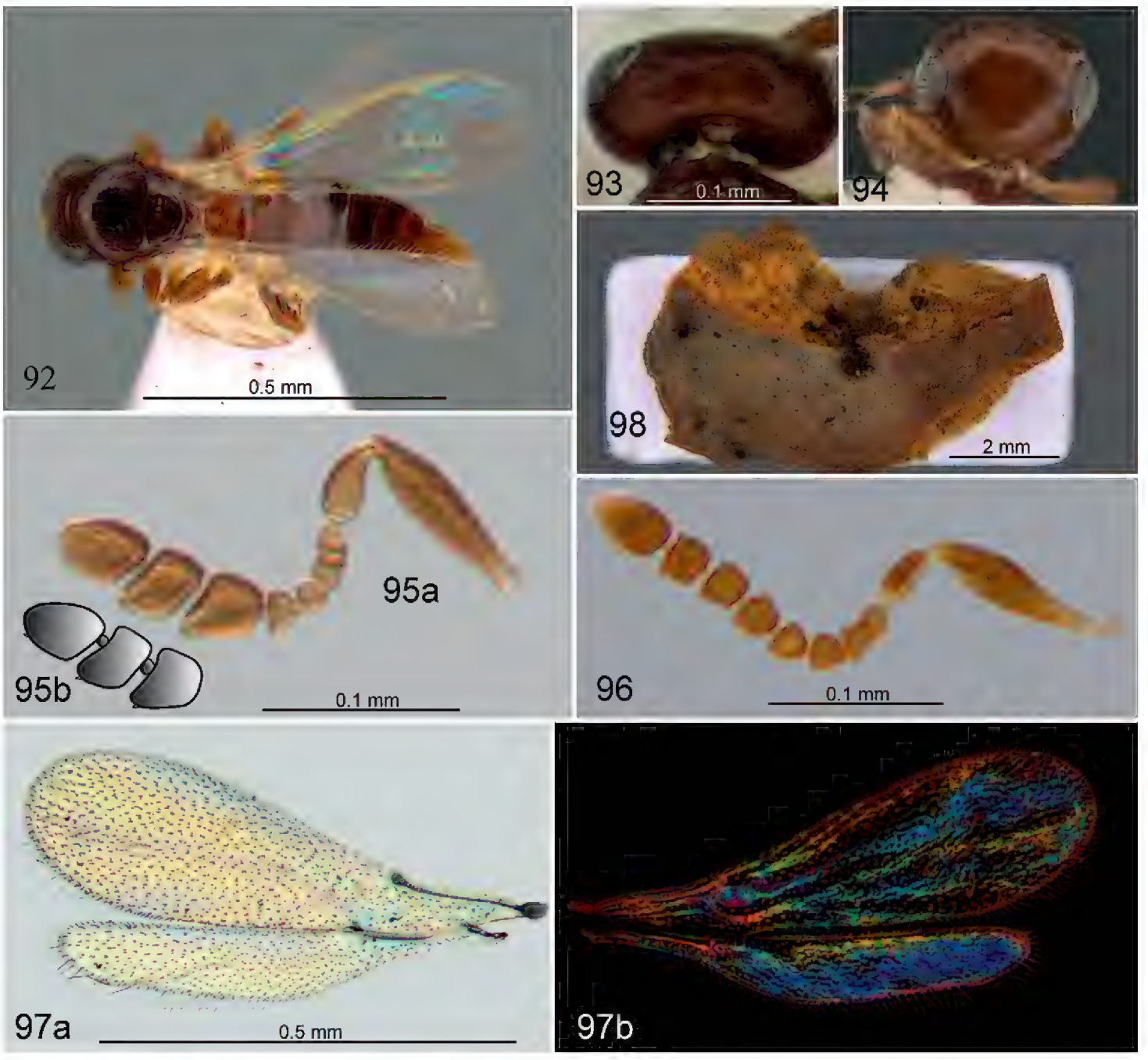
Fidiobia hispanica Popovici & Buhl, 2010: 1149; Notton et al. 2014: 2.

Description. Female. Body length: 0.7–0.9 mm. Colour of body: melanic (Fig. 92).

Head (Figs 93, 94). Colour of head: brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse alutaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL around 3 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: absent. Sculpture of frons immediately dorsal to toruli: absent. Epitorular carina: absent. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 95a). Colour of A1: brown. Colour of clava: almost similar to the rest of the antenna. Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): 1:1:1 (Fig. 95b).

Mesosoma (Fig. 92). Colour of mesosoma: light brown. Mesosoma: strongly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: flat. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: flat. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: the same with the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: hardly divergent anteriorly. Foamy structure on lateral propodeal carina: present on the entire carina, or only in posterior half. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, short setae on posterodorsal half. Setation of ventral metapleural area: sparse, short setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: absent. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, complete.

Wings (Figs 97a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing:

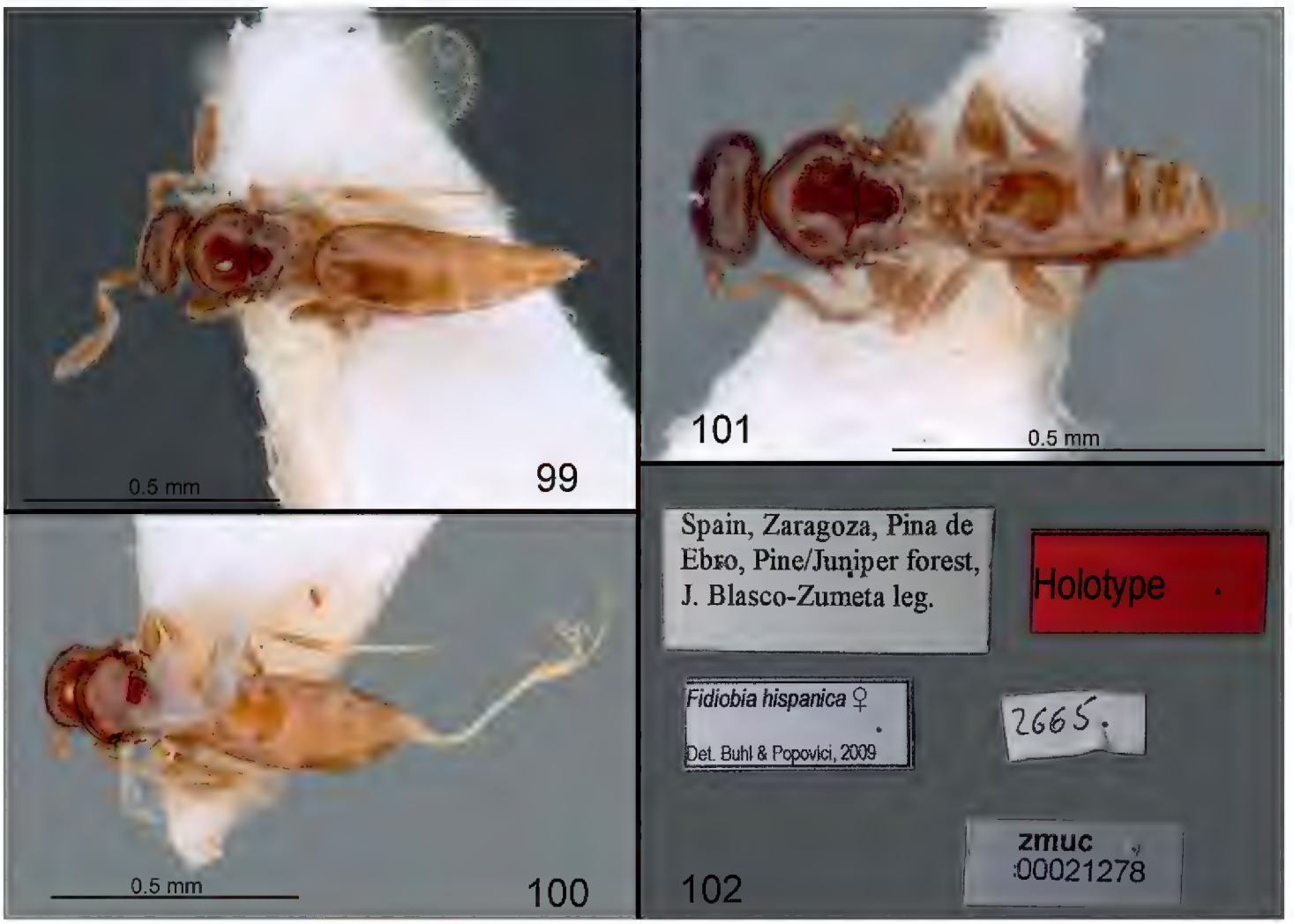


Figures 92–98. *Fidiobia hispanica*: **92** habitus, dorsal view (BMNH_01) **93** head, dorsal view **94** head, frontal view **95a** antenna (♀) **95b** sensillar formula **96** antenna (♂) **97a** wings **97b** WIP **98** gall of *Andricus lignicola*.

transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: brown. Colour of fore tarsus: yellow. Colour of middle femora: brown. Colour of middle tibiae: brown. Colour of middle tarsus: yellow. Colour of hind femora: brown. Colour of hind tibiae: brown. Colour of hind tarsus: yellow.

Metasoma (Fig. 92): Tergites posterior of T2 may be retracted under T2. Shape of T1: subrectangular. Colour of T1: brown. Lateral setae of T1: 3 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: T3–T5 the same as T2, T6 lighter than T2.

Male (Fig. 101): Similar to female, differing in the structure of the antenna and in some metasomal characters (see Popovici and Buhl 2010).



Figures 99–102. Types of *Fidiobia hispanica*: **99** Holotype ♀ **100** Paratype ♀ **101** Paratype ♂ **102** labels of the holotype.

Material examined. 22♀ and 3♂. Spain: ***Holotype*** (Fig. 99): 1♀, Pina de Ebro, Pine / Juniper forest, leg. J. Blasco Zumeta (Fig. 77) (ZMUC). ***Paratypes*:** 1♀, Pina de Ebro, UTM30TYL2894 (41.5207°N, -0.5055°E), 9.iii.1991, leg. Zumeta B. (OPPC 0801); 1♀, Pina de Ebro, UTM30TYL2894 (41.5207°N, -0.5055°E), 9.iii.1991, leg. Zumeta B. (Fig. 75) (ZMUC); 1♂, Pina de Ebro, UTM30TYL2894 (41.5207°N, -0.5055°E), 9.iii.1991, leg. Zumeta B. (Fig. 101) (ZMUC).

Non-type material. England: 16♀ and 3♂, London, Greenwich, Vanbrugh Pits, reared from a batch of beetle eggs in vacated *Andricus lignicola* (Hartig, 1840) gall on *Quercus robur* Linnaeus, 1753, (gall collected 17.i.2010, Notton D.G.) (BMNH); 5♀, London, Greenwich, Vanbrugh Pits, TQ397771 (51.4758°N, 0.0111°E), reared from a batch of beetle eggs in a vacated cell of *Synergus umbraculus* (Olivier, 1791) in an old *Andricus kollari* (Hartig, 1843) gall on *Quercus robur*, (gall collected 14.iii.2010, Notton D.G.) (BMNH).

Distribution. Spain, Ireland, England (Popovici and Buhl 2010; Notton et al. 2014) (Fig. 306).

Biology. Popovici and Buhl (2010) reported *Andricus lignicola* (Hartig) (Hymenoptera: Cynipidae) on *Quercus* as the host of *F. hispanica*, as it was in O'Connor et al. (2004). Notton et al. (2014) observed that, in fact, *F. hispanica*, was reared from beetle eggs found in a vacated gall of *Andricus lignicola* (Fig. 98) on *Quercus robur* and from beetle eggs found in a vacated *Synergus umbraculus* (Olivier) cell in a vacated

Andricus kollari (Hartig) gall. For this reason, we consider it likely that the true host is a beetle and not a cynipoid as mentioned in Popovici and Buhl (2010).

Diagnosis. The small size and delicate exoskeleton of *F. hispanica* make this species unmistakable among the Palearctic species with 10-merous antennae. The habitus is somewhat similar to that of *F. synergorum* and these species have been previously confused (Buhl 1999b; O'Connor et al. 2004). The main differences between them are the number of antennomeres (10 in *F. hispanica* and 9 in *F. synergorum*) and the ratio between the width and height of the mesosoma in females (1.6 in *F. hispanica* and 2.7 in *F. synergorum*), the transverse carina between the lateral propodeal carinae (present in *F. hispanica* and absent in *F. synergorum*) and the structure of the metasoma in males (presented in Popovici and Buhl 2010). The 1:1:1 sensillar formula (Fig. 95b) is unique among the Palearctic species of *Fidiobia* in which this character has been observed.

10. *Fidiobia hofferi* Kozlov, 1978

Figs 103–114, 290–292, 307

Fidiobia hofferi Kozlov, 1978: 656; Koponen and Huggert 1982: 53; Vlug 1995: 24; Buhl 1999a: 18; Evans and Peña 2005: 62; Popovici and Buhl 2010: 1159; Asadi-Farfar et al. 2020: 128.

Description. Female. Body length: 0.5–0.6 mm. Colour of body: melanic (Figs 103a, 104a, 105, 106).

Head. Colour of head: light brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse alutaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL around 2 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons, but smoother. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Figs 103b, 104b). Colour of A1: light brown. Colour of clava: almost similar to the rest of the antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma. Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: almost colliniar with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured

along midline. Length of notaulus / maximum width of notaulus: 3–4 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: few, sparse setae. Setation of ventral metapleural area: few, sparse setae. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, incomplete. ***Wings*** (Figs 107, 108): fully winged, brachypterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma. Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

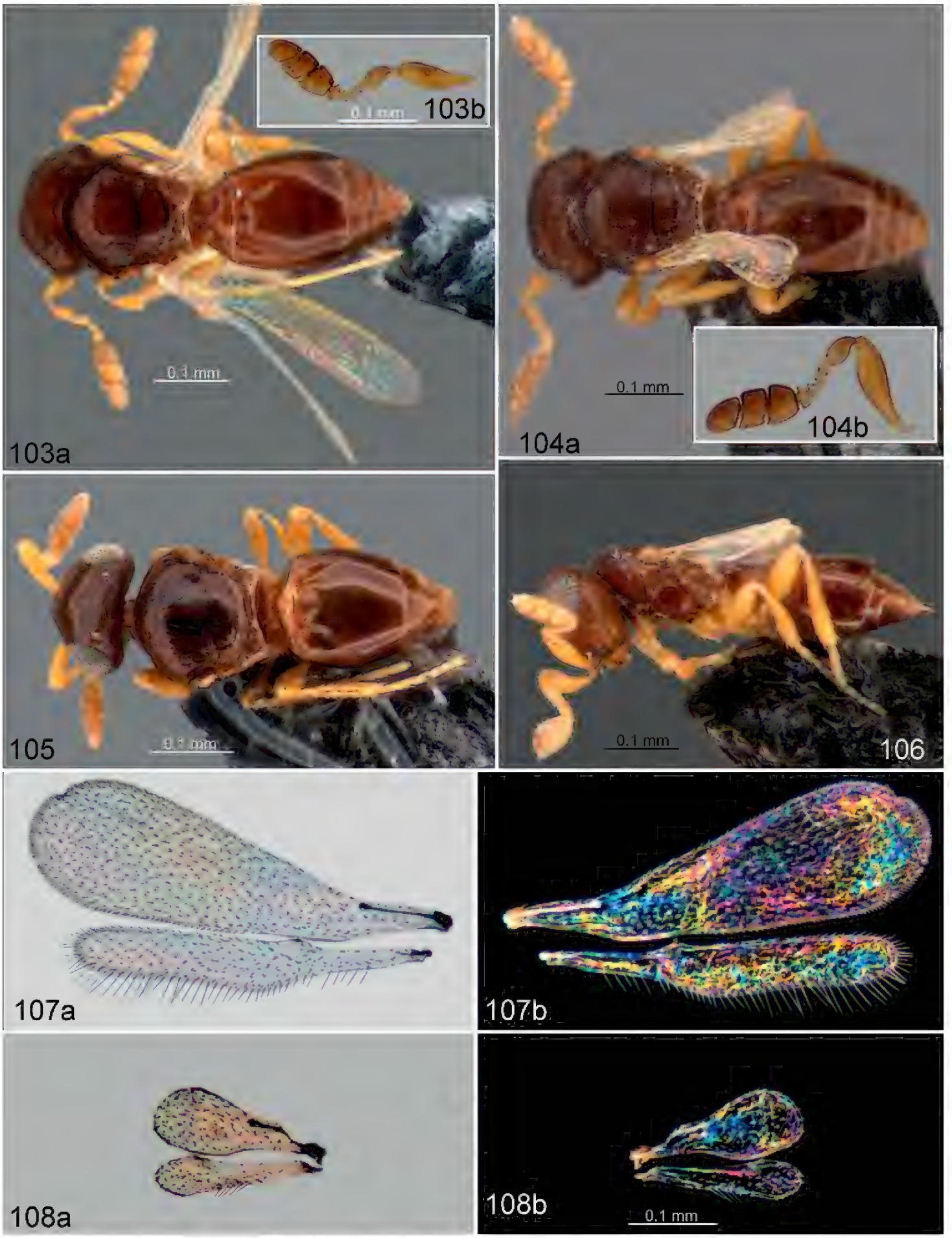
Material examined. 19♀. Czech Republic: 2♀, (paralectotypes), Moravia, Bzenec, 48.967°N, 17.253°E, 1.vii.1958, leg. Lemarie J., (ex. larva ichneumonid) [OPPC0814 (Figs 109–114), 0802].

Romania: 8♀ (brachypterous) and 8♀ (full winged), Iași, Bârnova forest near Slobozia, 47.01139°N, 27.60306°E, 4.vii.2011, leg. Noyes JS. (SS) (OPPC0660, 0659, 0658, 0657, 0662, 0656, 0826, 0661 and OPPC0635, 0636, 0637, 0655, 0633, 0663, 0638, 0634).

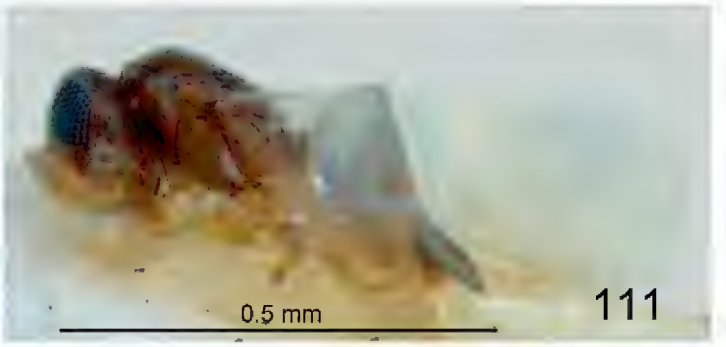
Ukraine: 1♀, Transcarpathia reg., Svydovets, 2–3 km NW of Kvasy, 48.1524°N, 24.2662°E, 5–29.vi.2014, beech forest, leg. Varga O. (TT) (OPPC0823).

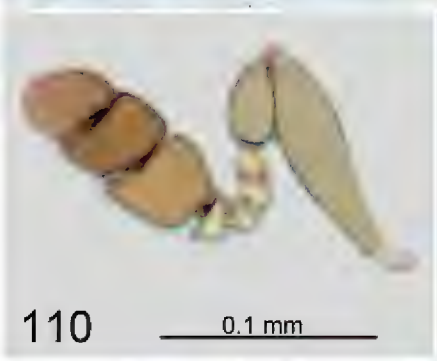
Distribution. Finland, Sweden, Iran (Koponen and Huggert 1982; Asadi-Farfar et al. 2020), Czech Republic, Romania, Ukraine (Fig. 307).

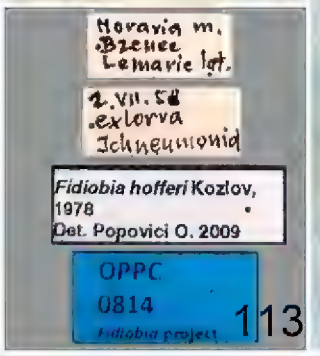
Biology. The host is unknown, but Lemarie (1958, 1959, 1960, 1961) reported that the specimens from the type series were reared from an ichneumonid parasitoid

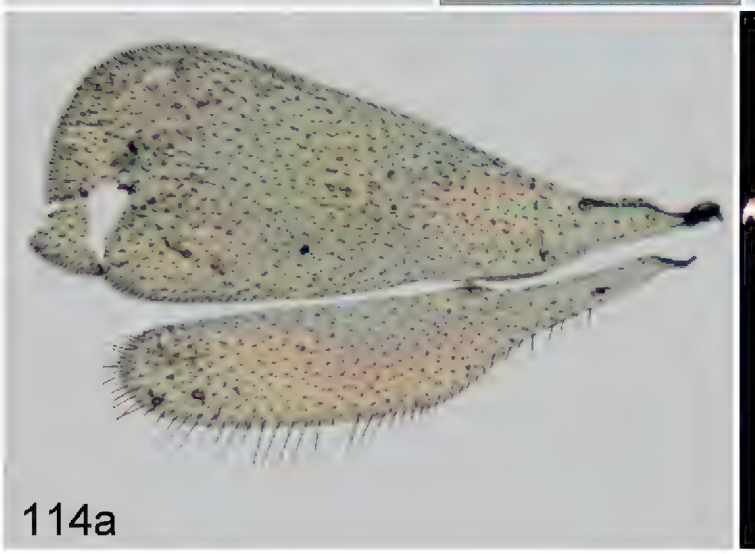


Figures 103–108. *Fidiobia hofferi*: **103a** fully winged specimen, habitus, dorsal view (OPPC0635) **103b** antenna in fully winged specimen (♀) (OPPC0638) **104a** brachypterous specimen, habitus, dorsal view (OPPC0826) **104b** antenna in brachypterous specimen (♀) **105** specimen with extremely brachiptery (OPPC0823) **106** brachypterous specimen, lateral view **107a** fully developed wings **107b** WIP in fully developed wings **108a** brachypterous wings (OPPC0656) **108b** WIP in brachypterous wings..









Figures 109–114. *Fidiobia hofferi*, paralectotype: **109** habitus, dorsal view **110** antenna (♀) **111** habitus, lateral view **112** head and mesosoma, lateral view **113** data labels **114a** wings **114b** WIP.

of *Exoteleia dodecella* (Linnaeus) (Lepidoptera: Gelechiidae). We consider this assumption to have no support. The habitat of this species in Romania is represented by glades with shrubby vegetation.

Diagnosis. This species can be diagnosed by the visible metascutellum and nearly glabrous metapleuron. It is relatively close to *F. vanharteni* and *F. polita* based on its general habitus. *Fidiobia hofferi* is most likely to be confused with *F. polita*, a species with which it is sympatric. The main difference is the presence of notauli in *F. hofferi* and the absence of these structures in *F. polita*. Another difference between these two species is the OOL:OD ratio (OOL is 2 times as long as OD in *F. hofferi* and OOL is equal to OD in *F. polita*).

Fidiobia hofferi can be separated from *F. vanharteni* because the fore wings are uniformly hyaline in *F. hofferi* and dark medially in *F. vanharteni*. Also, the OOL is equal to about 2 OD in *F. hofferi* and the OOL is equal to or less than OD *in F. vanharteni*. *Fidiobia hofferi* is a polymorphic species and contains brachypterous females among the Romanian material.

Comments. In specimens from the type series, the median prominence of T1 is smooth and without carinae. In the Romanian material, the median prominence of T1 has two carinae. Also, the specimens from Romania are more gracile than the specimens from the type series. The specimen from Ukraine has the wings more reduced than the brachypterous specimens from Romania, which are about half the length of the notauli, and the medial prominence of T1 with three carinae. The Ukrainian specimen otherwise matches our concept of *F. hofferi*.

11. *Fidiobia insoonae* Popovici, Talamas & Lahey, sp. nov.

https://zoobank.org/331C571D-68E6-4FBA-A734-4B5112018278

Figs 115–119, 308

Description. Female. Body length: 0.5 mm. Colour of body: melanic (Figs 115a, 116).

Head. Colour of head: brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 115b). Colour of A1: light brown. Colour of clava: variable. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 117, 118). Colour of mesosoma: light brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: smooth in posterior half, reticulate coriaceous anteriorly. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar

sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of metapleuron: setae on one or two rows along of metapleural carina; foamy structure of metapleural carina not covered by these setae, anteriorly with a large glabrous area. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: present, anteroventrally as a short and superficial depression. Mesopleural carina: present. Metapleural sulcus: absent. ***Wings*** (Fig. 119a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: present. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: light-brown. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: light-brown. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

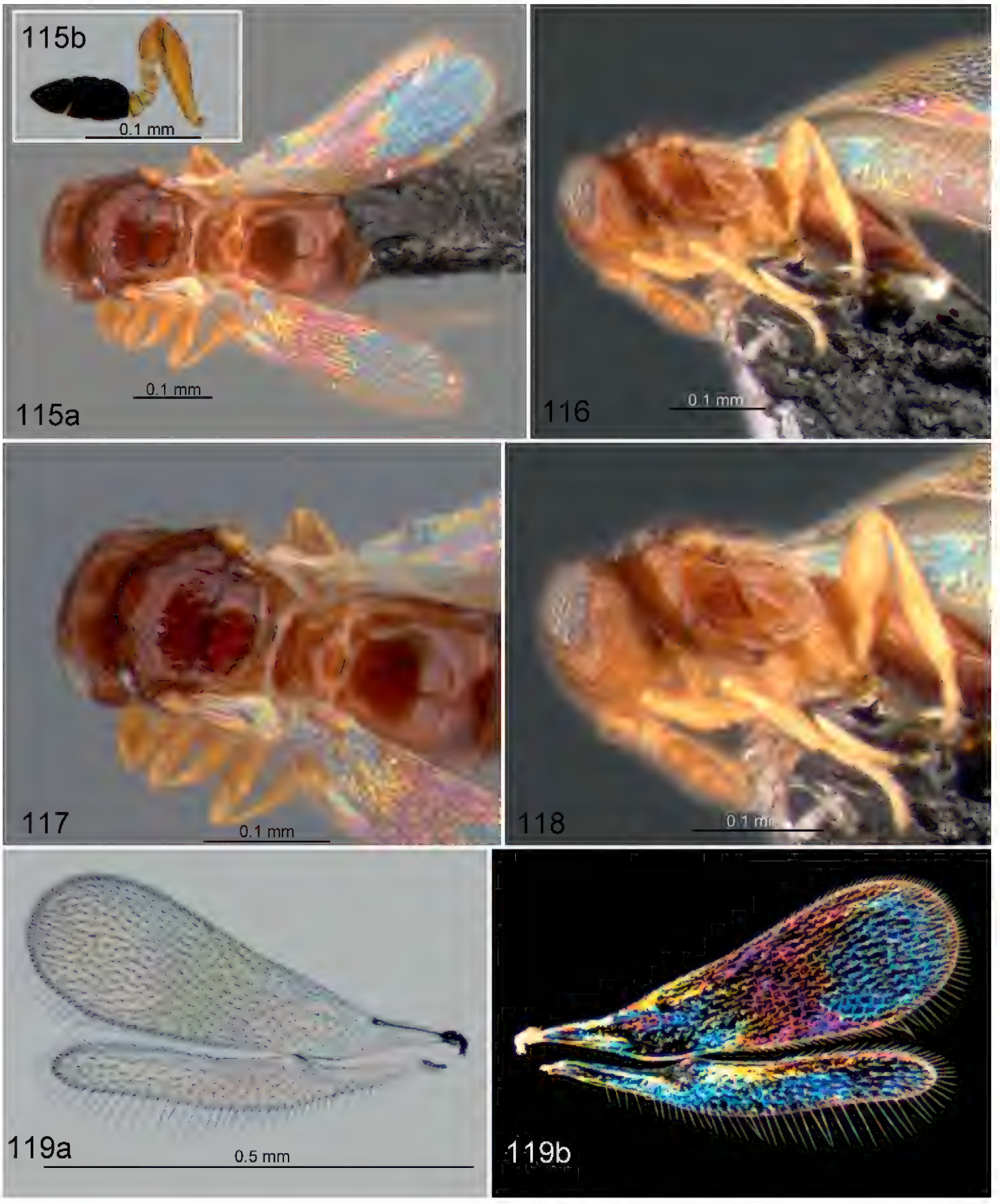
Metasoma. Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. This species is named in honor of Insoon Tripotin.

Material examined. 8♀. South Korea: ***Holotype*** 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripotin P. (MT) (OPPC0058).

***Paratypes*:** South Korea: 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 20.v–19.vi.2007, leg. Tripotin P. (MT) (OPPC0064); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripotin P. (MT) (OPPC0057); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 21.viii–25.ix.2007, leg. Tripotin P. (MT) (OPPC0546); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 25.ix–17.xi.2007, leg. Tripotin P. (MT) (OPPC0544); 1♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 11.vii–7.viii.2004, leg. Tripotin P. (MT) (OPPC0643); 1♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 26.ix–



Figures 115–119. *Fidiobia insoonae*: **115a** habitus, dorsal view (Holotype) **115b** antenna (♀) (OPPC0064) **116** habitus, lateral view **117** mesosoma, dorsal view **118** head and mesosoma, lateral view **119a** wings (OPPC0064) **119b** WIP.

31.x.2004, leg. Tripotin P. (MT) (OPPC0816); 1♀, Jirisan, Hamyang, Songjeon-li, Munsu-sa, 35.41232°N, 127.7303°E, 6–27.vi.2004, leg. Tripotin P. (MT) (OPPC0493).

Distribution. South Korea (Fig. 308).

Diagnosis. *Fidiobia insoonae* is superficially similar to *F. polita*, *F. politoides*, *F. flaviabdominalis*, and *F. hofferi* because of the almost similar size and the general habitus. It most obviously differs from *F. polita*, *F. politoides*, and *F. flaviabdominalis*

(it is sympatric with the latter two) by the presence of notauli. *Fidiobia insoonae* and *F. hofferi* are allopatric and differ from each other mainly by the metascutellum, which is covered by the posterior margin of mesoscutellum and not visible in *F. insoonae*, and because of the setation of the metapleuron is sparse in *F. hofferi* and dense in *F. insoonae*. Also, the marginal fringe of the fore wing is short and barely noticable in *F. hofferi* but it is long in *F. insoonae*.

12. *Fidiobia lisenchiae* Popovici, Lahey & Talamas, sp. nov.

https://zoobank.org/9DFB135B-F9D7-4CDC-85B9-0E1C03F6703B

Figs 120–124, 309

Description. Female. Body length: 0.7 mm. Colour of body: melanic (Fig. 120).

Head (Figs 121, 122, 124). Colour of head: black. Sculpture of head: alutaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons, but more transverse. Epitorular carina: absent. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent.

Antenna (Fig. 122). Colour of A1: light brown. Colour of clava: striking differs from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 123, 124). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: 3–4 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae surpassing the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae:

present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: short setae on entire surface, uniformly distributed. Setation of ventral metapleural area: short setae uniformly distribuited on the entire surface. Longitudinal striation on dorsal mesopleuron: absent. Transepisternal line: visible as a ridge on the anteroventral mesopleuron. Mesopleural carina: absent. Metapleural sulcus: present, incomplete. ***Wings.*** macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing:

Figures 120–124. *Fidiobia lisenchiae*: **120** habitus, dorsal view (Holotype) **121** head, dorsal view **122** head (frontal view) and antenna **123** mesosoma, dorsal view **124** head and mesosoma, lateral view.

present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: brown, with lighter basal and apical ends. Colour of fore tarsus: light brown. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: brown with lighter basal and apical ends. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma (Fig. 120): Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: transverse. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. This species is named after Camelia Lisenchi because of her great support during a collecting trip in Cyprus.

Material examined. 1♀. Cyprus: ***Holotype*** 1♀, 6 km N of Lemessos, 34.727°N, 33.05°E, 24.v.2009, leg. Popovici O. and Fusu L. (SN) (OPPC0813).

Distribution. Cyprus (Fig. 309).

Diagnosis. *Fidiobia lisenchiae* is similar to *F. platystasioides* because of the absence of epitorular carinae, the fore wings with very short marginal setae and the notauli slightly dilated posteriorly. These two species are easily separated because the mesosoma is slightly flattened in *F. lisenchiae* and visibly flattened in *F. platystasioides*. Also, T2 is transverse in *F. lisenchiae* and square or nearly so in *F. platystasioides*. The difference between these two states of T2 is reflected in the ratio of T2:T1. T2 is at most 3 times as long as T1 in *F. lisenchiae* and at least 4 times as long as T1 in *F. platystasioides*. The submarginal vein is shorter in *F. lisenchiae* than in *F. platystasioides*, with the apex of the submarginal vein hardly surpassing the posterior edge of the propodeum in *F. lisenchiae* and surpassing the middle of T1 in *F. platystasioides*. Other subtle differences between these species are the color of the scape and tibia (yellow in *F. lisenchiae* and dark brown in *F. platystasioides*), the sculpture of the dorsal mesopleuron (with few striae and a smooth area in *F. lisenchiae* and with numerous, dense striae in *F. platystasiodes*) and in the sculpture of the lateral pronotal area (sculptured only in dorsal third in *F. lisenchiae* and in dorsal two thirds in *F. platystasioides*).

13. *Fidiobia longiclava* Popovici, Masner & Talamas, sp. nov.

https://zoobank.org/97F07876-1F41-408C-88A2-362489490758

Figs 125–137, 310

Description. Female. Body length: 0.8–1.0 mm. Colour of body: Variable, melanic specimens are brown with hardly lighter T1; xanthic specimens are light brown to yellow with darker head (Figs 125–128).

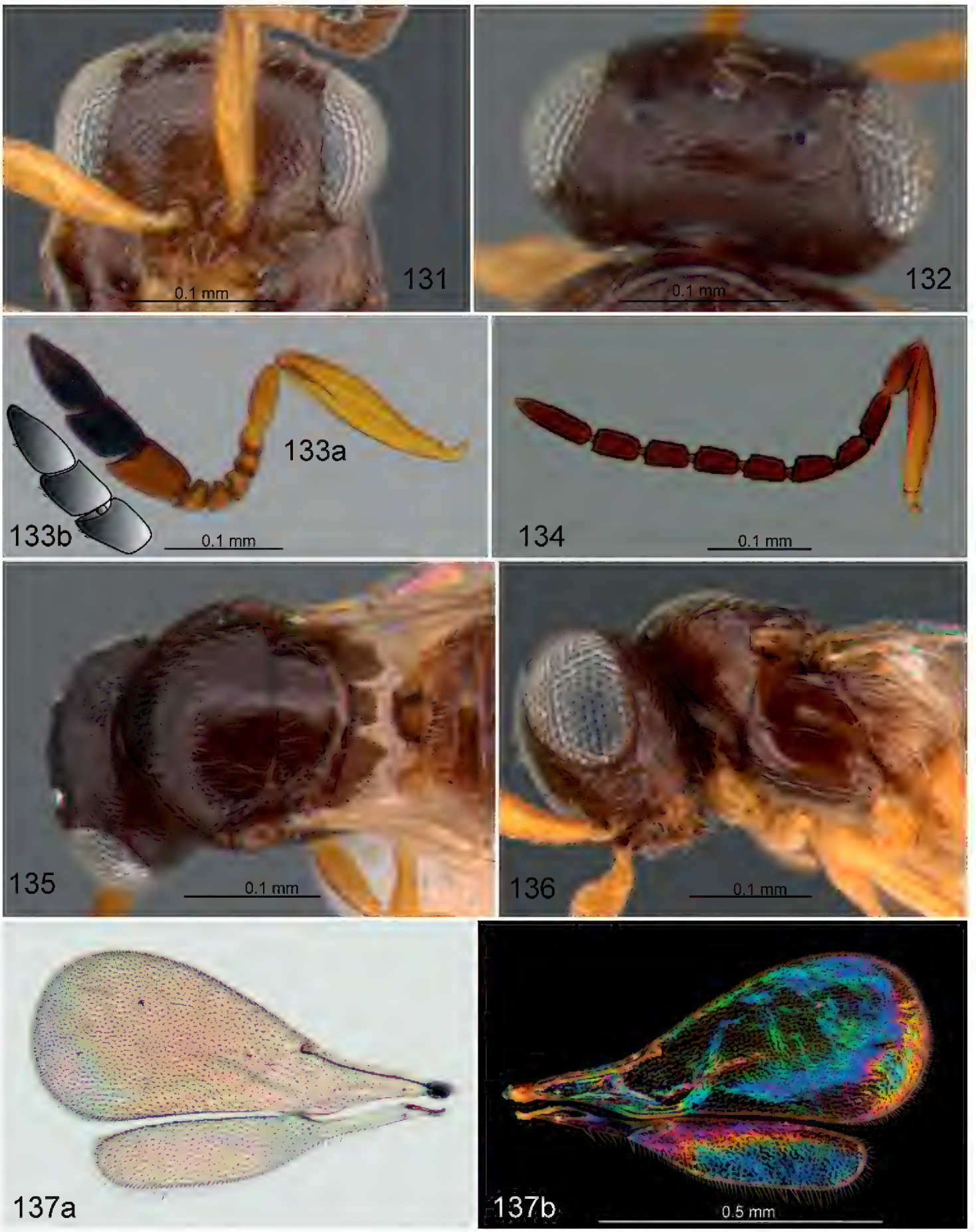
Head (Figs 131, 132, 136). Colour of head: brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence:

absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture on the rest of frons, but more transverse. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: six setae. Malar sulcus: absent. ***Antenna*** (Fig. 133a, b). Colour of A1: yellow. Colour of clava: almost similar to the rest of antenna. Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): 2:2:1.

Mesosoma (Figs 135, 136). Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: present. Mesoscutum: flat. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present as a change in sculpture or pilosity. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: shorter than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: present only laterad. Fovea on scuto-scutellar sulcus: present on the entire length of scutelo-scutellar sulcus. Mesoscutellum: weakly convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae not abutting posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: the same with the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: fused with lateral propodeal carina. Foamy structure on plica: present, fused with foamy structure from lateral propodeal carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: absent. Pilosity of dorsal metapleural area: short hairs on entire surface, uniformly distributed. Pilosity of ventral metapleural area: short hairs uniformly distributed on the entire surface. Longitudinal striation on dorsal mesopleuron: absent. Transepisternal line: complete, straight. Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 137a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose

Figures 125–130. *Fidiobia longiclava*: **125** melanic ♀, habitus, dorsal view (CNC-02) **126** melanic ♀, habitus, lateral view **127** xanthic ♀, habitus, dorsal view (CNC-01) **128** xanthic ♀, habitus, lateral view **129** ♂, habitus, dorsal view (CNC-03) **130** ♂, habitus, lateral view.

microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.



Figures 131–137. *Fidiobia longiclava*: **131** head, frontal view **132** head, dorsal view **133a** antenna (♀), **133b** sensillar formula **134** antenna (♂) **135** mesosoma, dorsal view **136** mesosoma, lateral view **137a** wings **137b** WIP.

Metasoma (Figs 126, 127): Tergites posterior of T2 exposed and clearly visible. Shape of T1: trapezoidal. Colour of T1: light brown. Lateral setae of T1: numerous. Colour of T2: reddish- brown. Shape of T2: transverse. Anterior pits of T2: merging

together in a deep and transverse anterior depression. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male (Figs 129, 130). Similar to the female, but differing in the structure of the antenna (Fig. 134).

Etymology. This species is named for the elongate shape of the clavomeres.

Material examined. 8♀ and 1♂. South Korea: ***Holotype*** 1♀, Jirisan, Hamyang-gun, Macheon-myon, Samjeong-li, 35.3486°N, 127.6392°E, 24.viii–15.ix.2003, leg. Tripotin P. (MT) (CNCI).

***Paratypes*:** South Korea, 4♀, Jirisan, Hamyang-gun, Macheon-myon, Samjeong-li, 35.3486°N, 127.6392°E, 24.viii–15.ix.2003, leg. Tripotin P. (MT) (CNCI); 2♀, Chungbuk, Yeongdong-gun, Sangchon-myeon, Mulhangyegong-ro, 36.1165°N, 127.8949°E, 4.viii–24.ix.2002, leg. Tripotin P. (MT) (CNCI); 1♂, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 31.vii–16.viii.2003, leg Tripotin P. (MT) (CNCI); 1♀, Jirisan, Hamyang-gun, Macheon-myon, Samjeong-li, 35.3486°N, 127.6392°E, 15.ix–13.x.2002, leg. Tripotin P. (MT) (CNCI); 1♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 31.vii–30.ix.2006, leg Tripotin P. (MT) (CNCI); 2♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 26.vi–30.vii.2006, leg Tripotin P. (MT) (CNCI).

Distribution. South Korea (Fig. 310).

Biology. unknown.

Diagnosis. The most diagnostic feature is the elongated shape of the clavomeres, which are unique among the Palearctic species of *Fidiobia* with 10-merous antennae. Non-sexually dimorphic characters that can be used to identify males are the notaular lines that are visible as a change in the setation of the mesoscutum and the nearly straight transepisternal line. The transverse anterior pits of T2 that nearly merge medially is unique among Palearctic *Fidiobia* that have a 10-merous antenna, lack notauli and have the junction of T1–T2 not covered by a row of setae. The color of the body in this species is highly variable, ranging from almost entirely yellow to completely brown.

14. *Fidiobia nipponica* Popovici, Masner & Lahey, sp. nov.

https://zoobank.org/61A1FCC4-6124-4DED-9FD0-2F11081700F1

Figs 138–144, 311

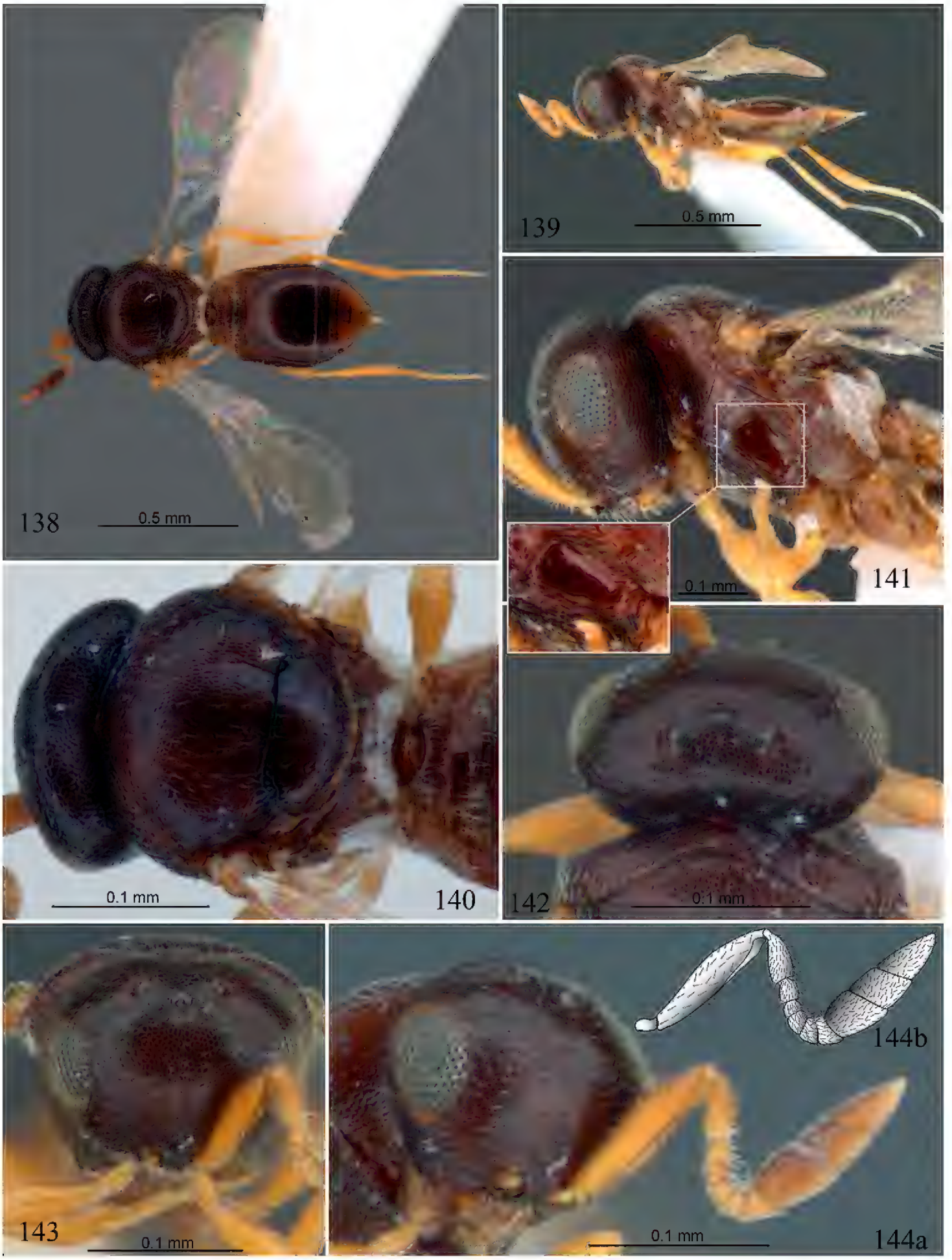
Description. Females. Length of body: 1.1 mm. Colour of body: melanic species (Figs 138, 139).

Head (Figs 142–144). Colour of head: brown. Sculpture of head: alutaceous. Sculpture of occiput: the same as the sculpture of head. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL around 3 times ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: alutaceous. Epitorular carina: absent. Distance

between toruli: equal to the transverse diameter of torulus. Setation of clypeus: four setae. Malar sulcus: absent. ***Antenna*** (Fig. 144b). Colour of A1: light brown. Colour of clava: similar to or slightly darker than the rest of antenna. Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): unknown.

Mesosoma (Figs 140, 141). Colour of mesosoma: brown. Mesosoma: cylindrical, not compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: not visible. Posteroventral end of transverse pronotal sulcus: NA. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: convex. Parapsidal lines: absent. Sculpture of internotaular area: alutaceous. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: present, complete. Fovea on scuto-scutellar sulcus: present laterally. Mesoscutellum: weakly convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: present. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: not visible, covered with foamy structure. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: absent. Foamy structure on transverse carina between lateral propodeal carinae: NA. Foamy structure on metasomal depression: present. Lateral propodeal carinae: divergent posteriorly. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: free, converging with lateral propodeal carina. Foamy structure on plica: present, as a single flange. Foamy structure on metapleural carina: present, only posteriorly. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: absent. Setation of ventral metapleural area: dense, short setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a ridge on the anteroventral mesopleuron, meeting mesopleural carina ventrally (Fig. 141). Mesopleural carina: present. Metapleural sulcus: present, complete. ***Wings.*** macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Figs 138, 139): Tergites posterior of T2 exposed and clearly visible. Shape of T1: subrectangular. Colour of T1: reddish-brown. Lateral setae of T1: absent. Colour of T2: brown. Shape of T2: transverse. Anterior pits of T2: merging together in a deep and



Figures 138–144. *Fidiobia nipponica*: **138** habitus, dorsal view (Holotype) **139** habitus, lateral view **140** mesosoma, dorsal view **141** mesosoma, lateral view **142** head, dorsal view **143** head, frontal view **144a** head and antenna (♀) **144b** antenna (♀).

transverse anterior depression. Sculpture of T2, lateral to anterior pits of T2: substrigulate on 1/2 of T2 length. Colour of T3–T6: T3 the same with T2, T4–T6 lighter than T2.

Male. unknown.

Etymology. This species is named after the country where the type material was collected.

Material examined. 1♀. Japan: ***Holotype*** 1♀, Tochigi, Hikinuma, Shiobara, 21.viii.1985, leg. Takahaghi K. (TT) (CNCI).

Distribution. Japan (Fig. 311).

Biology. unknown.

Diagnosis. We consider *F. nipponica* to be close to *F. striatitergitis* based on the presence of a metascutellar carina with a tooth, a posterior mesoscutellar sulcus and the very short marginal fringe of the fore wing. Although most of T2 in this species is smooth and shining, some very fine longitudinal striae can be observed laterally, but this sculpture is distinctly different than the extensive striation on T2 that is found in *F. striatitergitis*. The metasomal depression is completely covered with foamy structures and the large distance between the posterior ocellus and compound eye make this species easy to recognize among the Palearctic species of *Fidiobia* with 10-merous antennae.

15. *Fidiobia platystasioides* Masner, Popovici & Talamas, sp. nov.

https://zoobank.org/67CB2934-4D11-4933-8552-D0F944F70E26

Figs 145–152, 312

Description. Female. Body length: 0.7 mm. Colour of body: melanic (Figs 145, 146).

Head (Figs 148–152). Colour of head: dark brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same with the sculpture from the rest of frons, but more transverse. Epitorular carina: absent. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Figs 147, 150). Colour of A1: brown with lighter ends. Colour of clava: striking different from the rest of antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): unknown.

Mesosoma (Figs 151, 152). Colour of mesosoma: dark brown. Mesosoma: compressed. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along

midline. Length of notaulus / maximum width of notaulus: 3–4 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Setation of ventral metapleural area: dense, short setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae not abutting posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, short setae on posterodorsal half. Metapleural sulcus: absent. ***Wings.*** macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs***. Colour of fore tibia: light brown. Colour of fore tarsus: yellow with darker pretarsus. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: brown with lighter basal and apical ends. Colour of middle tarsus: yellow with darker pretarsus. Colour of hind femora: brown with lighter basal and apical ends. Colour of hind tibiae: brown with lighter basal and apical ends. Colour of hind tarsus: yellow with darker pretarsus.

Metasoma (Fig. 145): posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: dark brown. Lateral setae of T1: 2 pairs. Colour of T2: dark brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

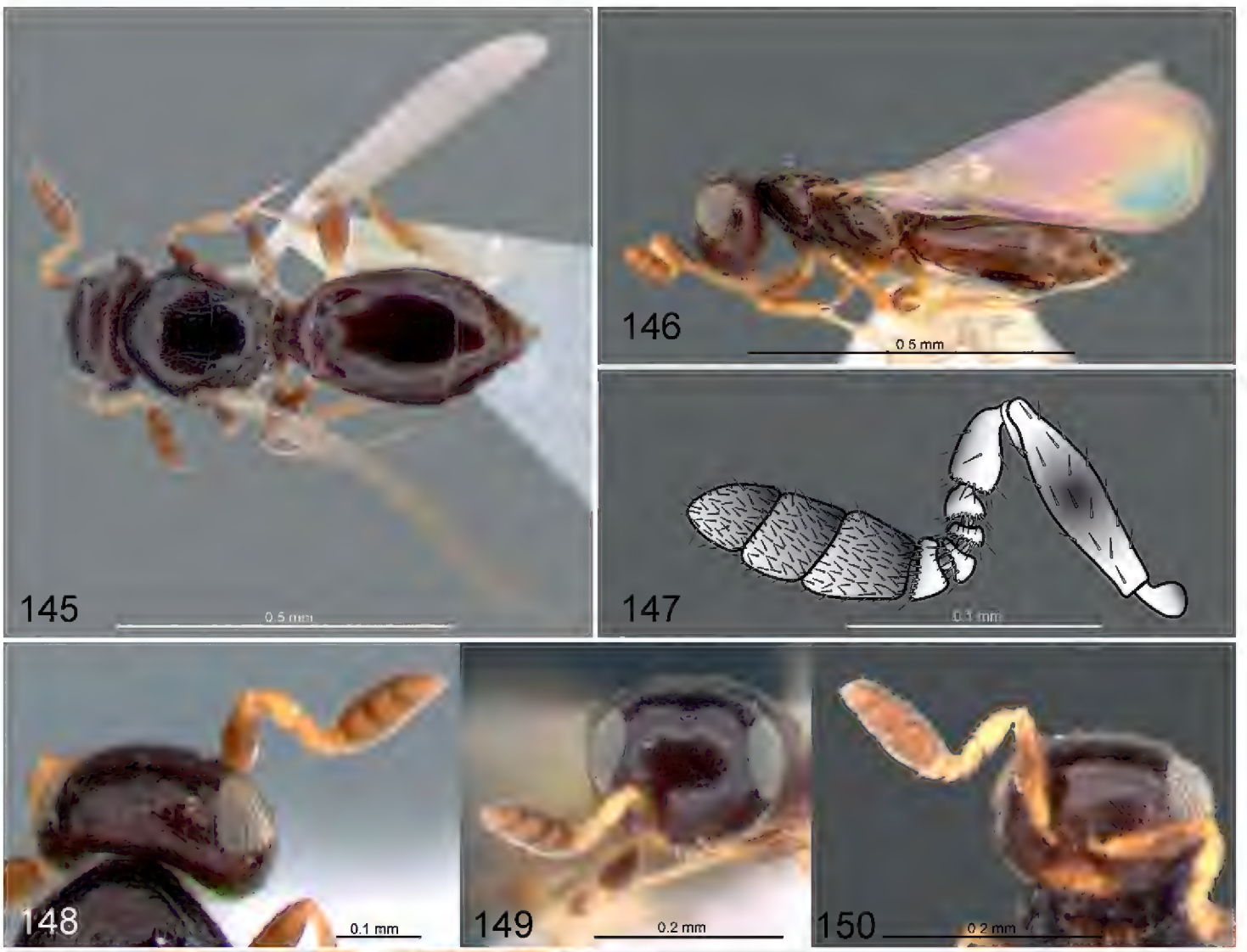
Etymology. This species is named for its similarity with species of *Platystasius* Nixon, 1937.

Material examined. 1♀. China: ***Holotype*** 1♀, Beijing Prov., Mentougo, 39.987°N, 115.5246°E, 28.vii.2002, leg. Melika G. (CNCI).

Distribution. China (Fig. 312).

Biology. unknown.

Diagnosis. *Fidiobia platystasioides* is similar to *F. lisenchiae* because of the absence of epitorular carinae, the fore wings with very short marginal setae and notauli slightly dilated posteriorly. The main differences between these two species is the ratio T2:T1 (in *F.*



Figures 145–152. *Fidiobia platystasioides*: **145** habitus, dorsal view (Holotype) **146** habitus, lateral view **147** antenna (♀) **148** head, dorsal view **149** head, frontal view **150** head and antenna **151** head and mesosoma, dorsal view **152** head and mesosoma, lateral view.

platystasioides T2 is at least 4 times as long as T1 and in *F. lisenchiae* T2 is at most 3 times as long as T1) and the length of the submarginal vein (the apex of the submarginal vein surpassing the middle of T1 in *F. platystasioides* and hardly surpassing the propodeum in *F. lisenchiae*). Other subtle differences between these species are the color of the scape and tibia (dark brown in *F. platystasioides* and yellow in *F. lisenchiae*), the sculpture of the

dorsal mesopleuron (with numerous dense striae in *F. platystasiodes* and with few striae and a smooth area in *F. lisenchiae*) and the sculpture of the lateral pronotal area (sculptured in dorsal two thirds in *F. platystasioides* and only in dorsal third in *F. lisenchiae*).

Comments. *Fidiobia platystasioides* is a distinct species because the notauli are slightly dilated posteriorly and almost parallel, and the body is flattened. These characteristics closely resemble those seen in the genus *Platystasius* Nixon.

16. *Fidiobia polita* Buhl, 1998

Figs 153–164, 297, 313

Fidiobia polita Buhl, 1998: 298; Buhl 1999a: 18; Evans and Peña 2005: 62; Popovici and Buhl 2010: 1154.

Description. Female. Body length: 0.5–0.6 mm. Colour of body: melanic (Figs 153, 154, 159).

Head (Figs 155, 156, 163). Colour of head: dark brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: smooth, reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: the same as the sculpture on the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 157). Colour of A1: light brown. Colour of clava: almost similar to the rest of the antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 155; 156). Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: present. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Trans-

verse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: sparse, long setae on posterodorsal half. Setation of ventral metapleural area: sparse, long setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, incomplete. ***Wings*** (Fig. 158a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: brown, with lighter basal and apical ends. Colour of fore tarsus: light brown. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: brown with lighter basal and apical ends. Colour of middle tarsus: light brown. Colour of hind femora: brown with lighter basal and apical ends. Colour of hind tibiae: brown with lighter basal and apical ends. Colour of hind tarsus: light brown.

Metasoma (Figs 153; 159): posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: transverse. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Material examined. 14♀. Estonia: 1♀, 1,5 km NE Sööru, 58.65063°N, 26.88531°E, 3–10.vi.2011, leg. Soon V. (OPPC0547).

Greece: 1♀, Kerkini lake Natural Park, Kerkini Mts., 41.28642°N, 23.20147°E, 4.v.2010, leg. Popovici O. and Fusu L. (SN) (OPPC0580).

Hungary: 5♀, Örseg, Nemzeti Park, Lugosy Valley, 46.9°N, 16.45°E, 28.vi.2010, leg. Noyes JS. (SS) (OPPC0817, 0584, 0585, 0587, 0586).

Romania: 1♀, Iași, Ciric, 47.24333°N, 27.57927°E, 20.v.2006, leg. Popovici O. and Moglan I. (SN) (OPPC0798).

Sweden: ***Holotype*** ♀, (Figs 159–164) (ZMUC).

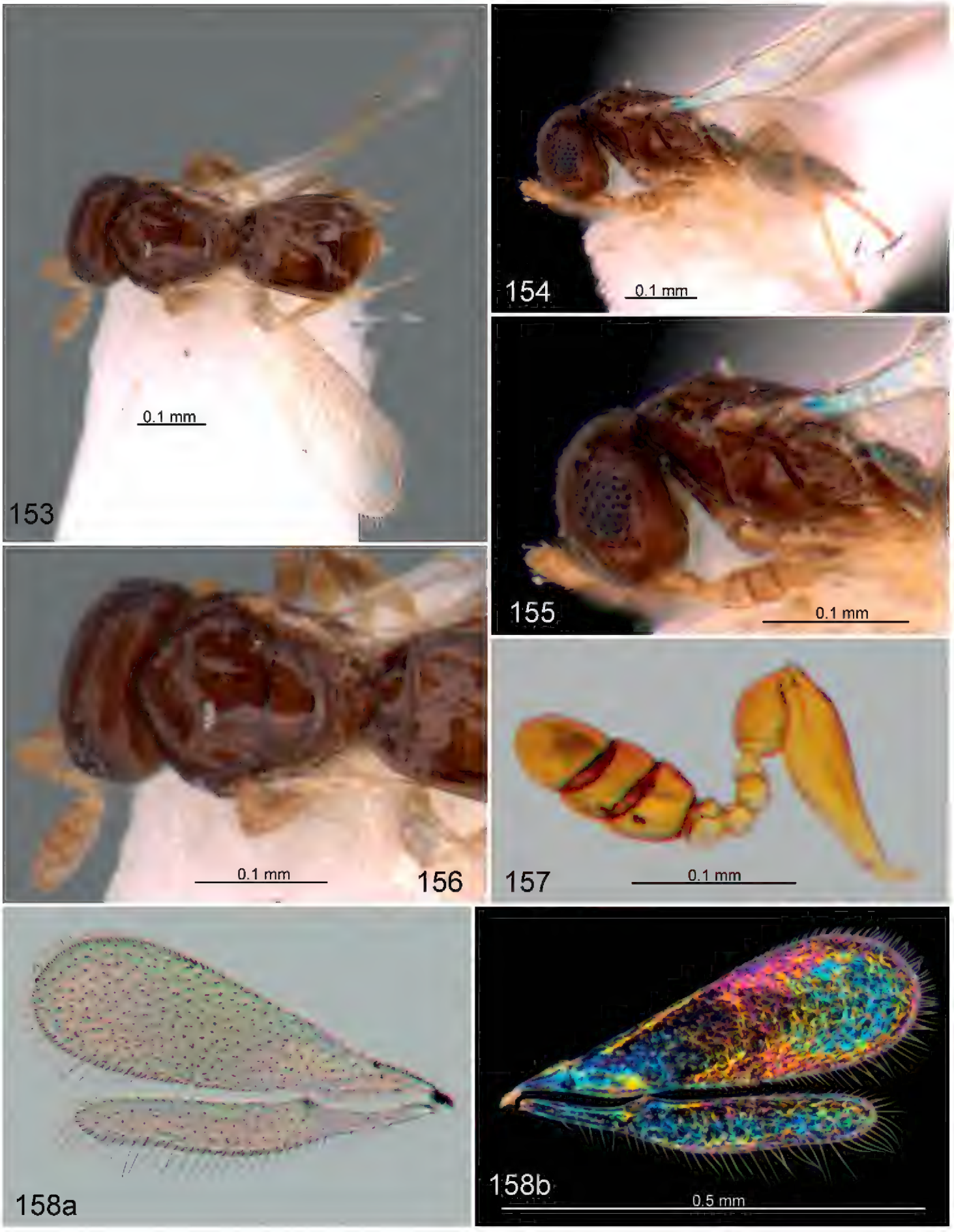
Non-type materia. 2♀, Småland, Asa, 57.16667°N, 14.78333°E, 5–6.vii.2007, leg. Shevtsova E. (OPPC0738, 0732).

Ukraine: 2♀, Mochary reg., 5 km NE of Bogorodchany, 48.84755°N, 24.59081°E, 16.vi–14.vii.2014, leg. Varga O. (OPPC0055, 0140); 1♀, Mochary reg., 5 km NE of Bogorodchany, 48.84755°N, 24.59081°E, 8–14.vi.2015, leg. Varga O. (OPPC0186).

Distribution. Estonia, Greece, Hungary, Romania, Sweden, Ukraine (Fig. 313).

Biology. unknown.

Diagnosis. *Fidiobia polita* is distinct among the Palearctic species of this genus with 9-merous antennae and without notauli because T2 is transverse or about as long as wide and the OOL is about as long as an OD (OOL 0.8–1.2 times as long as OD). Of the Palearctic fauna, *F. polita* is most similar to *F. politoides* and differs in the length



Figures 153–158. *Fidiobia polita*: **153** habitus, dorsal view (OPPC0738) **154** habitus, lateral view **155** head and mesosoma, lateral view **156** head and mesosoma, dorsal view **157** antenna (♀) (OPPC0738) **158a** wings (OPPC0738) **158b** WIP.

of the fore wing marginal setae (long marginal setae in *F. polita* and very short marginal setae in *F. politoides*). According to the studied material these species are allopatric.

In the European fauna, *F. polita* is similar to *F. hofferi* but differs by the notauli (which are present in *F. hofferi* and absent in *F. polita*) and by the ratio OOL:OD

Figures 159–164. Holotype of *Fidiobia polita*: **159** habitus, dorsal view **160** habitus, lateral view **161** mesosoma, dorsal view **162** mesosoma, lateral view **163** head and antenna **164** labels.

(OOL = 2OD in *F. hofferi* and OOL = OD in *F. polita*). Because of the small size of both species, and because in some specimens of *F. hofferi* the notauli are superficial, the presence of notauli can be difficult to observe. Minor differences can also be observed in the structure of the antenna: A3 is shorter than A4 and the junction between A2 and A3 is narrow in *F. polita*, but in *F. hofferi* A3 is almost as long as A4 and the junction between A2 and A3 is large. In *F. polita*, A5 has the same shape as A4 (globular or moniliform), but in *F. hofferi* A5 it is more transverse than A4. The study of these characters requires examination of the antenna on a microscopic slide.

Comments. In our material, the specimens from Sweden (type locality) are very similar to the specimen from Estonia. The specimen from Greece is the smallest, relatively weakly sclerotized and, in connection with this, the color of body is lighter than in the rest of the specimens. However, there are no characters to reliably separate it. Also, the Romanian specimen is slightly larger than the rest of the specimens examined.

17. *Fidiobia politoides* Popovici, Talamas & Lahey, sp. nov.

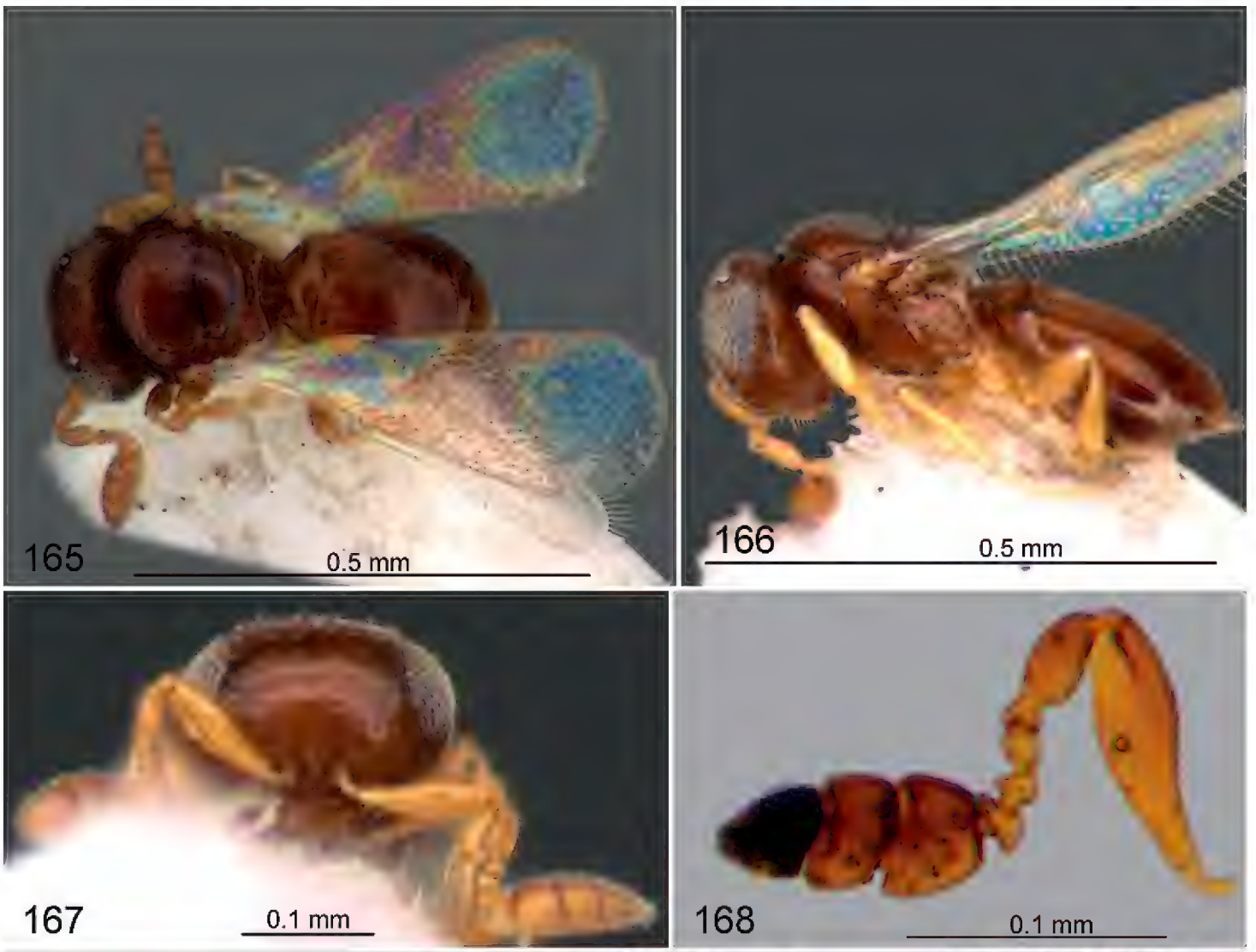
https://zoobank.org/CE22B92E-FBC4-4274-9C35-98EF3D147992

Figs 165–169, 314

Description. Female. Body length: 0.5 mm. Colour of body: melanic (Figs 165–166).

Head (Fig. 167). Colour of head: brown. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: present. OOL / ocellar diameter: OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 168). Colour of A1: light brown. Colour of clava: similar to or slightly darker than the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 165, 166). Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: present. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present, weakly developed. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: not visible. Posterior end of plica: NA. Foamy structure on plica: NA. Foamy struc-



Figures 165–169. *Fidiobia politoides*: **165** habitus, dorsal view (OPPC0475) **166** habitus, lateral view **167** head (frontal view) and antenna **168** antenna (♀) **169a** wings **169b** WIP.

ture on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: few, sparse setae. Setation of ventral metapleural area: absent. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, incomplete. ***Wings*** (Fig. 169a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: present. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae

of fore wing: very short, almost absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma (Figs 165, 166): Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. This species is named for its similarity to *F. polita*.

Material examined. 2♀. South Korea: ***Holotype*** 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.iv–20.v.2007, leg. Tripotin P. (MT) (OPPC0653).

***Paratype*:** South Korea: 1♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 25.v–14.vi.2003, leg Tripotin P. (MT) (OPPC0475).

Distribution. South Korea (Fig. 314).

Biology. unknown.

Diagnosis. *Fidiobia politoides* is close to *F. polita* because T2 is transverse or about as long as wide and the OOL is about as long as an OD (OOL 0.8–1.2 times as long as OD) and they differ in the length of the fore wing marginal setae (long marginal setae in *F. polita* and very short marginal setae in *F. politoides*). In the structure of antenna, the clava in *F. politoides* is larger than in *F. polita*, and A5 and A6 are more transverse in *F. politoides* than in *F. polita*. According to the studied material these species are allopatric.

18. *Fidiobia pronotata* Szabó, 1958

Figs 170–180, 284, 315

Fidiobia pronotata Szabó, 1958: 459; Kozlov 1978: 656; Kozlov 1987: 1199; Masner and Huggert 1989: 69. Evans and Peña 2005: 62; Popovici and Buhl 2010: 1155.

Description. Female. Body length: 0.9–1.0 mm. Colour of body: bicoloured, head and mesosoma black, metasoma brown (Figs 170, 171).

Head (Figs 172–174). Colour of head: black. Sculpture of head: areolate-rugulose. Sculpture of occiput: areolate-rugulose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate-coriaceous. Sculpture of frons immediately dorsal to toruli: areolate-rugulose, but more transverse. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 175a). Colour of A1: yellow. Colour of clava:

striking different from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1 (Fig. 175b).

Mesosoma (Figs 170, 171, 178). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: cervical pronotal area broader than lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: more than half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: dense, long setae on entire surface, uniformly distributed. Setation of ventral metapleural area: dense, long setae on the entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a superficial depression on the anteroventral mesopleuron. Mesopleural carina: present. Metapleural sulcus: absent. ***Wings.*** brachypterous. Apex of fore wing (Fig. 176): acuminate. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: absent. Length of submarginal vein in fore wing: unknown. Spectral veins on fore wing: absent. Marginal setae of fore wing: absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Figs 170, 178): Tergites posterior of T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: reddish brown. Lateral setae of T1: 2 pairs. Colour of

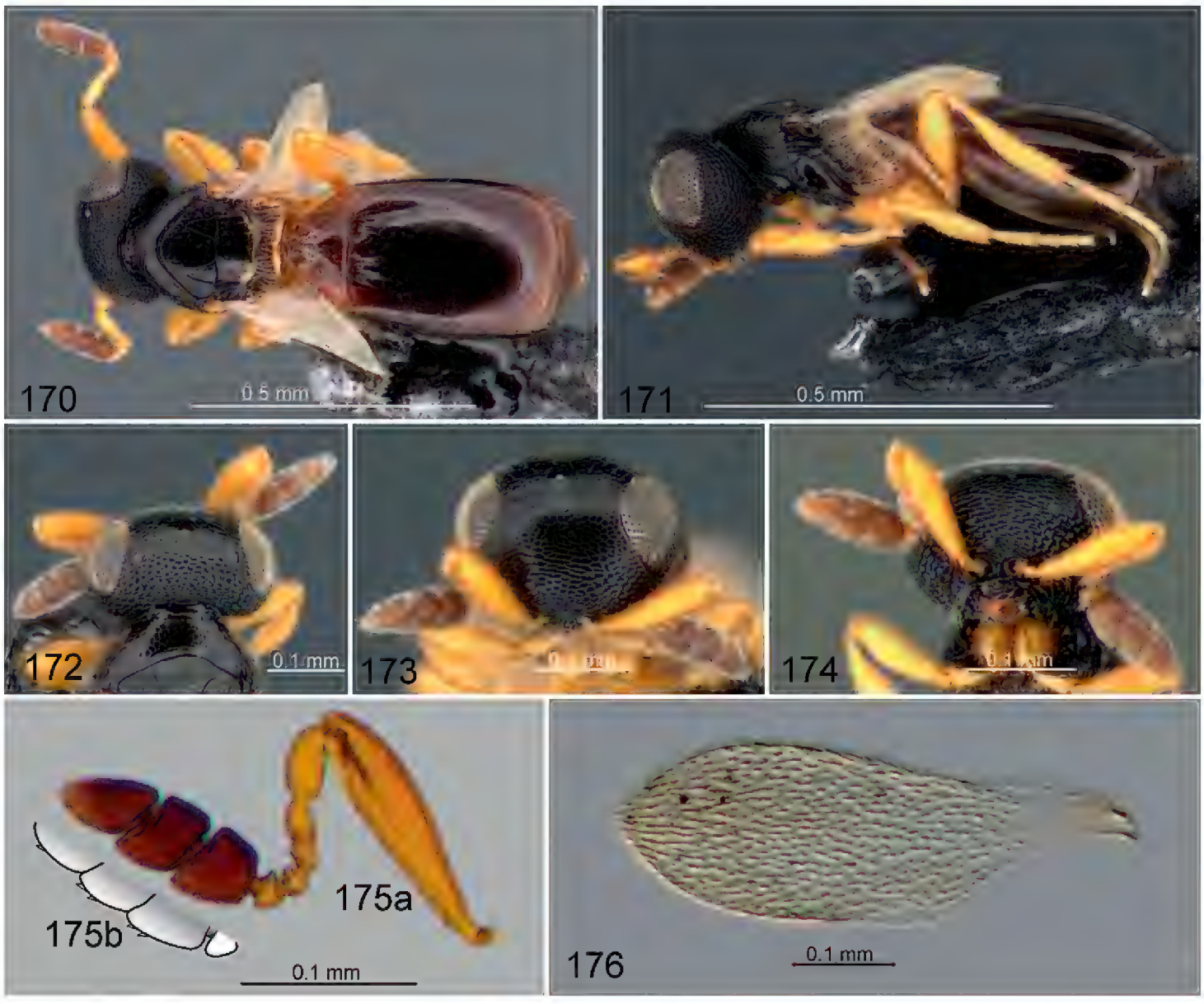
T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

Male. unknown.

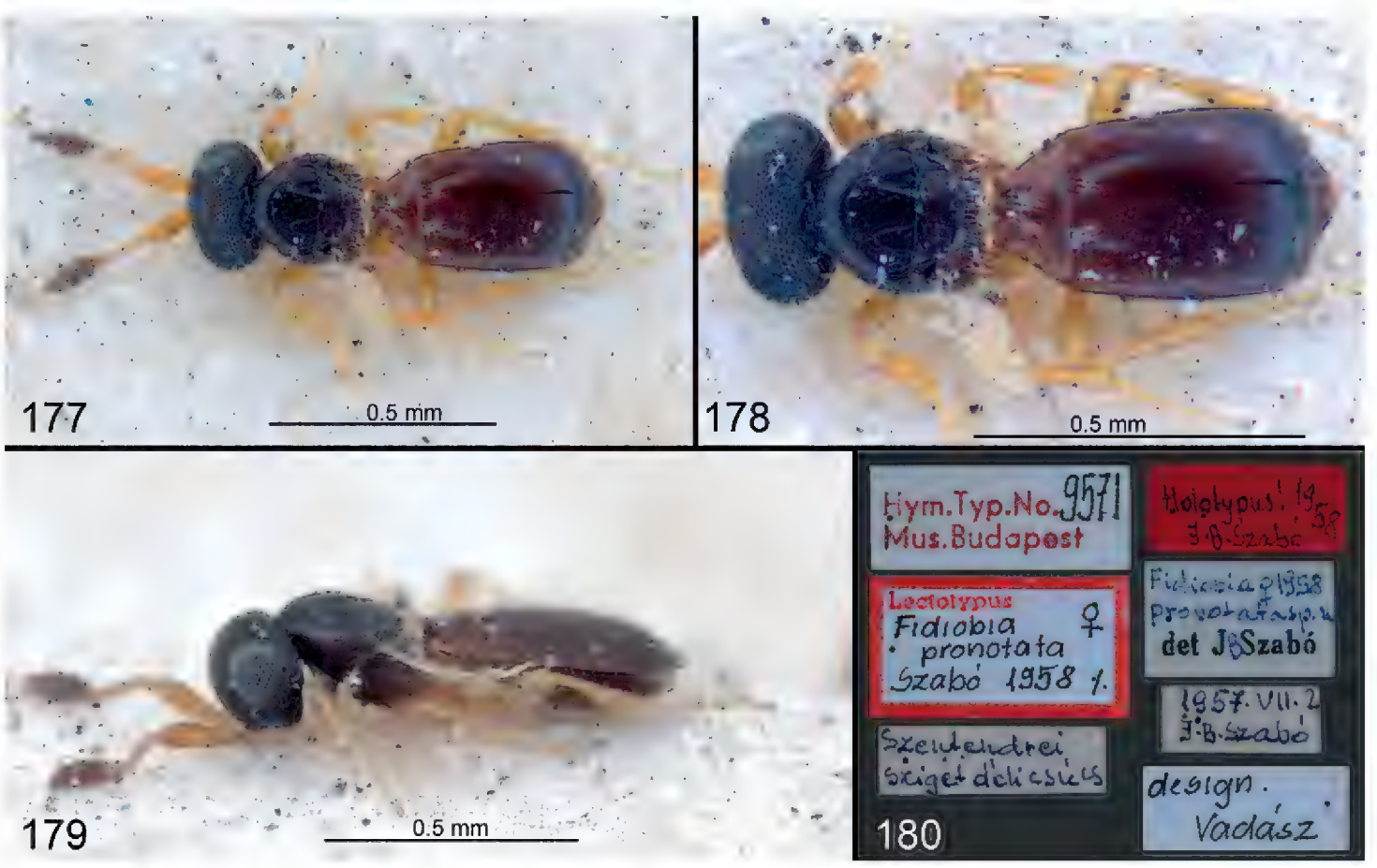
Material examined. 11♀. France: 1♀, Côte-d'Or, Esbarres, 47.102°N, 5.229°E, 1.ix.1948, leg. Barbier J. (MNHP); 1♀, Côte-d'Or, Esbarres, 47.102°N, 5.229°E, 22.ix.1955, leg. Barbier J. (MNHP); 1♀, Côte-d'Or, Gevrolles, 47.985°N, 4.772°E, 4.ix.1957, leg. Barbier J. (MNHP); 1♀, Côte-d'Or, Esbarres, 47.102°N, 5.229°E, 16.vii.1958, leg. Barbier J. (CNCI); 1♀, Côte-d'Or, Esbarres, 47.102°N, 5.229°E, 27.viii.1959, leg. Barbier J. (CNCI).

Hungary: ***Holotype***: ♀, Pesta, Szentendrei-sziget, 47.643°N, 19.099°E, 2.vii.1957, leg. Szabó JB. (HNHM) (Figs 177–180); ***Paratype*:** 1♀, Siófok, Zamárdi, 46.861°N, 17.953°E, 29.x.1953, leg. Balogh J. (HNHM).

Romania: 1♀, Iași, Botanical Garden, 47.186°N, 27.5512°E, 17.ix.2003, leg. Popovici O. (sweep net) (OPPC0692); 1♀, Constanța, Vadu, 44.47265°N, 28.8064°E, 26.viii.2004, leg. Popovici O. (sweep net) (OPPC0693); 1♀, Iași, Ciric lake, 47.18778°N,



Figures 170–176. *Fidiobia pronotata*: **170** habitus, dorsal view (OPPC0693) **171** habitus, lateral view **172** head, dorsal view **173** head, frontal view **174** head and antenna **175a** antenna (♀) (OPPC0692) **175b** sensillar formula **176** fore wing (OPPC0692).



Figures 177–180. Holotype of *Fidiobia pronotata*. **177, 178** habitus, dorsal view **179** habitus, lateral view **180** data labels.

27.60139°E, 30.vii.2010, leg. Popovici O. (YPT) (OPPC0482); 1♀, Iași, Botanical Garden, 47.1875°N, 27.54889°E, 30.vi.2011, leg. Noyes JS. (SS) (OPPC0755).

Distribution. Germany (Buhl et al. 2016); Republic of Moldova (Kozlov 1987); France, Hungary, Romania (Fig. 315).

Biology. unknown.

Diagnosis. *Fidiobia pronotata* can be easily identified by the elongate pronotum, shortened wings and large, non-foveate mesoscutal humeral and suprahumeral sulci. The epomial carina is absent, or very short and weakly indicated. This combination of characters is unique among Palearctic *Fidiobia*.

Comments. In the original description of this species, Szabó (1958) designated the holotype and one paratype. Both specimens were located in HNHM. In the case of the holotype, near the original labels there is one label that indicates the specimen as the lectotype (Fig. 180). We do not understand the significance of this label.

It is a relatively rare species not often collected with sweep nets or Malaise traps.

19. *Fidiobia pronotatoides* Popovici, Lahey & Talamas, sp. nov.

https://zoobank.org/77B46AEB-73ED-4B95-8DA3-251EE57E739B

Figs 181–185, 316

Description. Female. Body length: 0.84 mm. Colour of body: melanic (Figs 181, 182).

Head (Figs 183–185). Colour of head: black. Sculpture of head: areolate rugulose. Sculpture of occiput: areolate rugulose. Ocellar prominence: absent. Preocellar

depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: areolate rugulose. Sculpture of frons immediately dorsal to toruli: areolate rugulose. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 186). Colour of A1: light brown. Colour of clava: different from the rest of the antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): unknown.

Mesosoma (Figs 181, 182). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a wide groove along the anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: present. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: more than half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: shorter than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: dense, long setae on entire surface, uniformly distributed. Setation of ventral metapleural area: dense, long setae on the entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: absent. ***Wings*** (Figs 181, 182): brachypterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: light brown with darker pretarsus. Colour of middle femora: light

brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown with darker pretarsus. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: yellow with darker pretarsus.

Metasoma (Figs 181, 182): Tergites posterior of T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: dark brown. Lateral setae of T1: 2 pairs. Colour of T2: black. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

Male. unknown.

Etymology. This species is named for its similarity to *F. pronotata*.

Material examined. 1♀. Romania: ***Holotype*** 1♀, Iași, Valea lui David, 47.1939°N, 27.4697°E, 30.v.2018, leg. Popovici O. (SS) (OPPC0001).

Distribution. Romania (Fig. 316).

Biology. unknown.

Diagnosis. There are three brachypterous species of *Fidiobia* with notauli and areolate-rugulose sculpture on the frons: *F. pronotanoides*, *F. pronotata*, and *F. rugosifrons*. Between these species, brachyptery is always observed in *F. pronotata* and *F. pronotatoides*, but it is a rarity for *F. rugosifrons*.

Fidiobia pronotatoides is very close to *F. pronotata*, differing by the pronotum of typical length, the narrow mesoscutal humeral and suprahumeral sulci, the well developed

Figures 181–186. *Fidiobia pronotatoides*: **181** habitus, dorsal view (Holotype) **182** habitus, lateral view **183** head, dorsal view **184** head, frontal view **185** head and antenna **186** antenna (♀).

epomial carina (longer than half the length of the pronotum measured along midline), fore wings apically rounded (acuminate in *F. pronotata*), legs light brown with brown coxae (legs entirely yellow in *F. pronotata*) and a glabrous median prominence of T1 (setose in *F. pronotata*). *Fidiobia pronotatoides* can be separated from *F. rugosifrons* by the length of the fore wing (not reaching the middle of T2), the internotaular sculpture (smooth in posterior half), and the lateral pronotal area (smooth in ventral half).

20. *Fidiobia roatai* Popovici, Talamas & Lahey, sp. nov.

https://zoobank.org/62BC0958-38CC-42B5-B83C-6221396A6DA8

Figs 187–194, 285, 317

Description. Female. Body length: 0.9–1.0 mm. Colour of body: melanic (Figs 187, 188).

Head (Figs 189, 190). Colour of head: black. Sculpture of head: areolate rugulose. Sculpture of occiput: areolate rugulose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: areolate rugulose. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 191). Colour of A1: yellow. Colour of clava: striking different from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 192, 193). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along of anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: more than half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: at most 1.9 times as long as maximum width. Distance between notauli: almost equal with the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae surpassing the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent.

Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: absent. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: dense, long setae on posterodorsal half. Setation of ventral metapleural area: dense, long setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a sulcus on the anteroventral mesopleuron connected with a pit. Mesopleural carina: present. Metapleural sulcus: present, complete. ***Wings*** (Fig. 194a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present; absent. Length of submarginal vein in fore wing: as short as tegula. Spectral veins on fore wing: absent. Marginal setae of fore wing: absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma (Fig. 187): Tergites posterior of T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

Male. unknown.

Material examined. 7♀. Romania: ***Holotype*** 1♀, Iași, Mârzești, 47.242716°N, 27.471497°E, 19.vi.2016, leg. Popovici O. (SS) (OPPC0827). ***Paratypes:*** 2♀, Iași, Mârzești, 47.24417°N, 27.48278°E, 5.vii.2011, leg. Mitroiu M. (SN) (OPPC0567, 0568); 3♀, Iași, Mârzești, 47.242716°N, 27.471497°E, 19.vi.2016, leg. Popovici O. (SS) (OPPC0550, 0540, 0548).

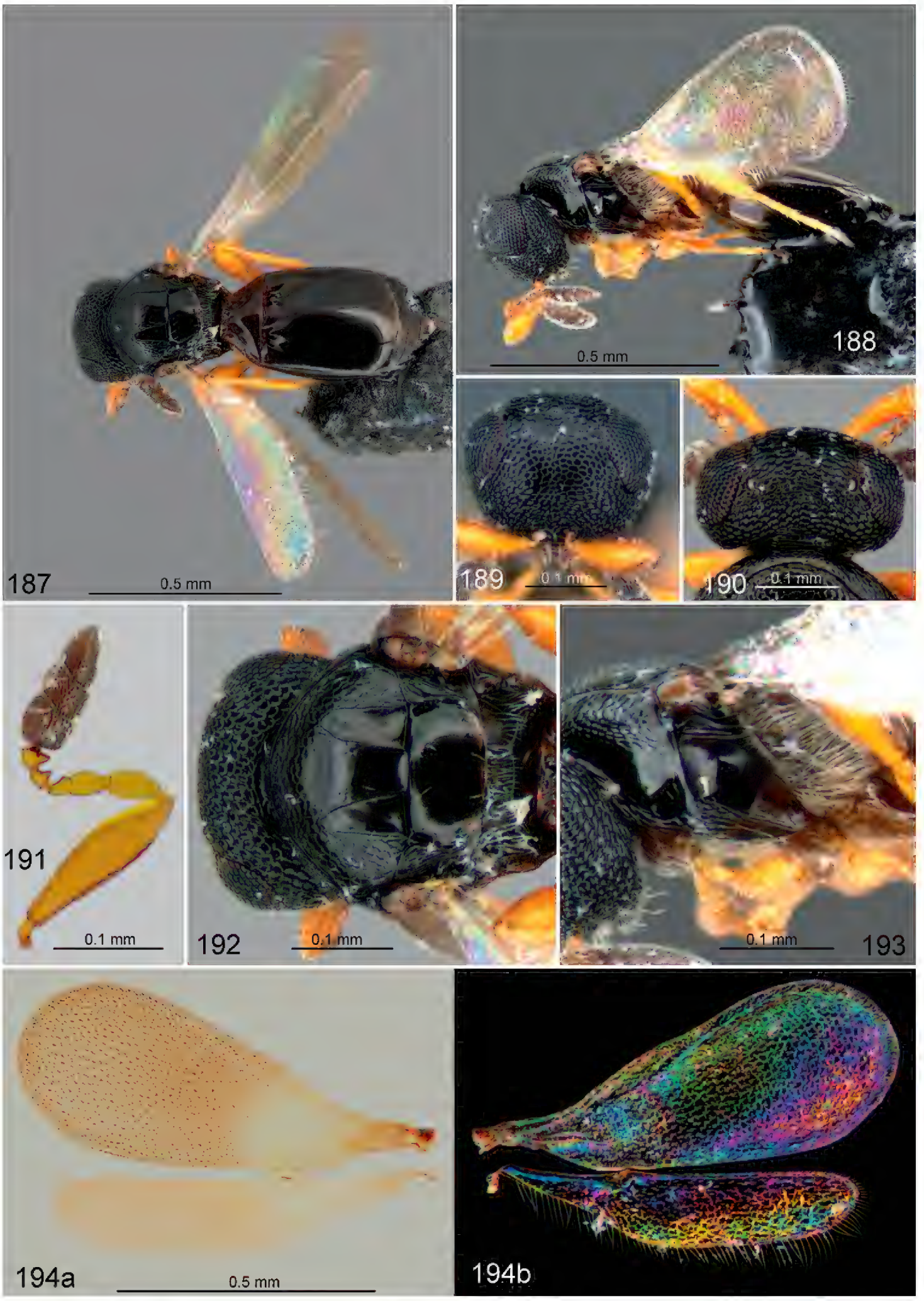
Non-type material. 1♀, Iași, Ciric, 26.vi.2006, 47.24333°N, 27.57927°E, leg. Popovici O. (SN) (OPPC0696).

Etymology. This species is named after Dr. Cristian Roată, a well-known surgeon from Iași (Romania).

Distribution. Romania (Fig. 317).

Biology. The host is unknown. The specimens were collected from a typically steppic habitat.

Diagnosis. *Fidiobia roatai* is distinct among species with an areolate-rugulose frons because of its dark body, absence of sculpture between the notauli, absence of foamy structures on the propodeum, the ratio between A2 and A3 (A2 1.3–1.5 times as long as A3 in *F. roatai* and 2.4–2.6 times as long as A3 in *F. rugosifronsoides*), the ratio between A3 and A4 (A3 1.8–2.0 times as long as A4 in *F. roatai* and 1.2–1.3 times



Figures 187–194. *Fidiobia roatai*: 187. habitus, dorsal view (Holotype) **188** habitus, lateral view **189** head, frontal view **190** head, dorsal view **191** antenna (♀) (OPPC0548) **192** mesosoma, dorsal view **193** mesosoma, lateral view **194a** wings (OPPC0548) **194b** WIP.

as long as A4 in *F. rugosifronsoides*) and the rudimentary or absent submarginal vein of fore wing. Also, the fore wings in *F. roatai* have a peculiar pattern in color and in the distribution of setae. The basal 1/5 of the fore wing is light brown and the setae are absent or punctiform on this area. The apical 3/5 of fore wing is also light brown but covered with short setae. Between basal and apical brown areas of the fore wing there is a lighter almost triangular area. The anterior margin of the fore wings is also peculiar with an expanded costal lobe.

21. *Fidiobia rugosifrons* Crawford, 1916

Figs 195–214, 286, 287, 318

Fidiobia rugosifrons: Crawford 1916: 141; Fouts 1924: 8; Kieffer 1926: 700, 701; Masner and Muesebeck 1968: 76; Fabritius 1974: 294; Kozlov 1978: 656; Kozlov 1987: 1199; Masner and Huggert 1989: 69; Buhl 1999a: 18; Evans and Peña 2005: 62; Popovici and Buhl 2010: 1157.

Fidiobia tatrae: Szelényi 1941: 167; Jansson 1956: 89; Szabó 1958: 462; Masner and Huggert 1989: 69.

Rosneta phryne: Debauche 1947: 280; Jansson 1956: 88; Masner and Huggert 1989: 69.

Fidiobia phryne: Ghesquière 1948: 45; Masner and Huggert 1989: 69.

Description. Female. Body length: 0.7–1.0 mm. Colour of body: melanic (Figs 195–198).

Head. Colour of head: black. Sculpture of head: areolate-rugulose. Sculpture of occiput: areolate-rugulose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: areolate-rugulose. Sculpture of frons immediately dorsal to toruli: areolate-rugulose. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 199). Colour of A1: light brown. Colour of clava: striking different from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma. Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: present. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: reticulate rugose. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: almost collinear with axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: half of length of mesoscutum, measured along midline. Length of notaulus /

maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae abutting the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: visible, partially covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: present, only posteriorly. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: dense, long hairs on posterodorsal half. Setation of ventral metapleural area: dense, long hairs on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a ridge on the anteroventral mesopleuron connected with a pit. Mesopleural carina: present. Metapleural sulcus: present, complete. ***Wings*** (Fig. 201a, b): macropterous, brachypterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma. Tergites posterior to T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: dark brown. Lateral setae of T1: 3 pairs. Colour of T2: dark brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

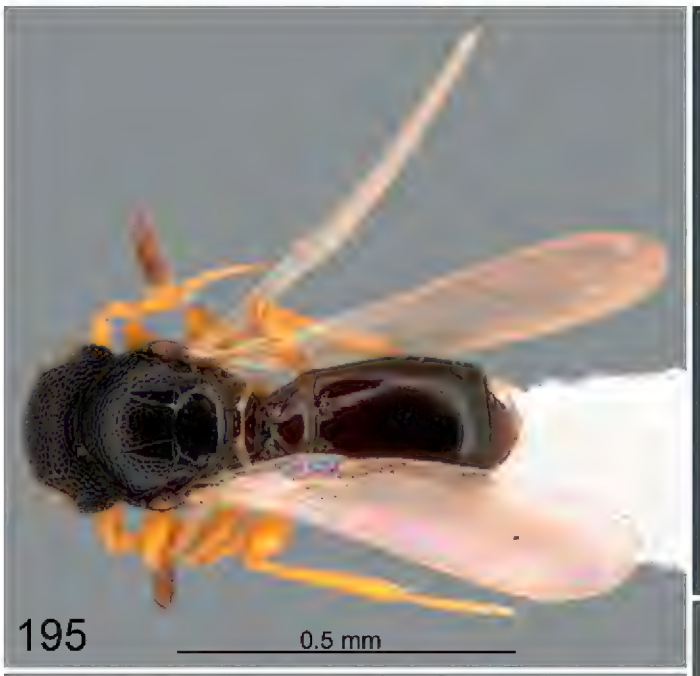
Male. similar to the female, but differs in the structure of the antenna (Fig. 200).

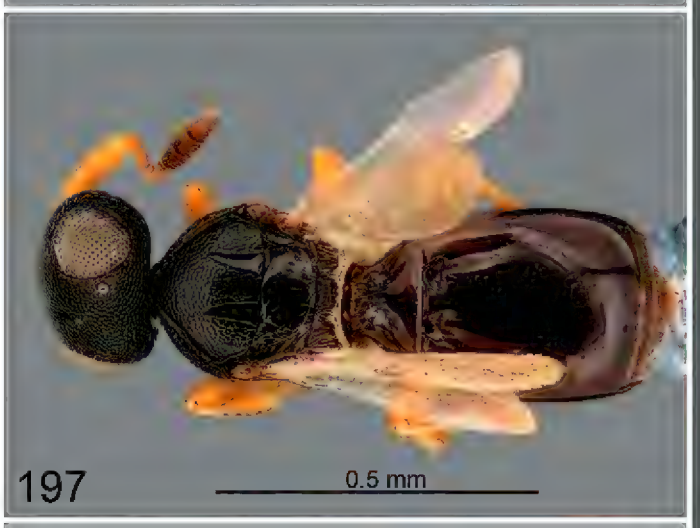
Material examined. 29♀ and 3♂. USA: ***Holotype*** of *F. rugosifrons* Crawford (Figs 202–205): ♀, Montoursville, Pennsylvania, 15.iv.1916 (USNM).

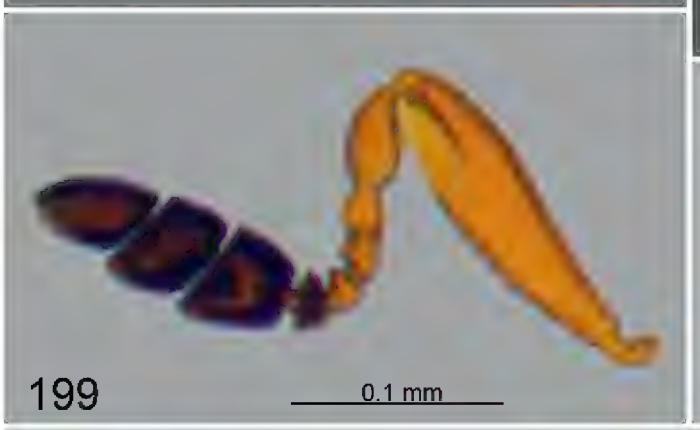
Belgium: ***Holotype*** of *Rosneta phryne* Debauche (Figs 209–211): 1♀, Heverlé, 1.vi.1941. ***Paratypes*** of *Rosneta phryne* Debauche (Figs 212–214): 3♀ the same data as the holotype; 1♀, Heverlé, 9.vii.1942; 1♀, Kessel-Loo, 27.viii.1945.

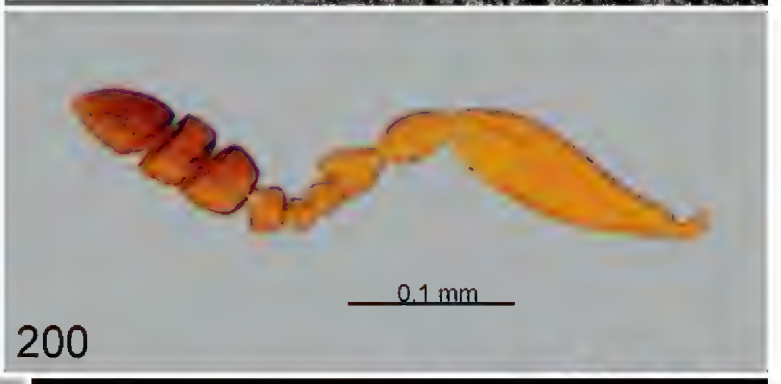
Hungary: Type of *F. tatrae* Szelényi (Figs 206–208): ♀ Magas Tátra, 22.viii.1934 (HNHM).

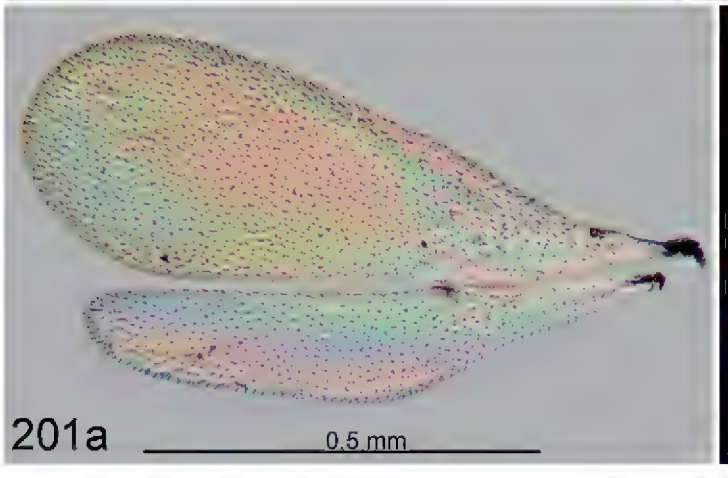
Non-type material. Hungary: 2♀, Örseg, Nemzeti Park, Lugosy Valley, 46.9°N, 16.45°E, 28.vi.2010, leg. Noyes JS. (SS) (OPPC0582, 0583); 7♀, Vas Co, Köseg, 47.36633°N, 16.52173°E, 26.vi.2010, leg. Hansson C. (SS) (OPPC0707, 0700, 0698,

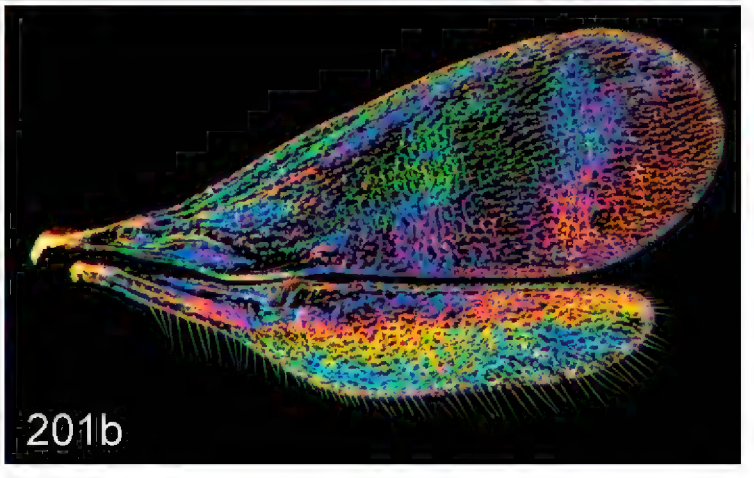












Figures 195–201. *Fidiobia rugosifrons*: **195** habitus, dorsal view (OPPC0703) **196** habitus, lateral view **197** habitus, dorsal view (brachypterous form OPPC0474) **198** habitus, lateral view (brachypterous form) **199** antenna (♀) (OPPC0699) **200** antenna (♂) (OPPC0691) **201a** wings (OPPC0576) **201b** WIP.

0708, 0701, 0702, 0699); 1♀, Vas Co, Köseg, 47.36633°N, 16.52173°E, 26.vi.2010, leg. Popovici O. (SN) (OPPC0703); 1♀, Vas Co, Bárkás Lake, 46.86982°N, 16.42605°E, 28.vi.2010, leg. Hansson C. (SS) (OPPC0706).

Estonia: 1♀, 1.5 km NE Sööru, 58.66111°N, E 26.88531°, 21.iv–11.v.2011, leg. Soon V. (SN) (OPPC0590).

France: 1♂, Puy de Dôme, Gergovie Plant., 45.71°N, 3.01°E, 16.vii.1977, leg. de V. Graham MWR (BMNH).

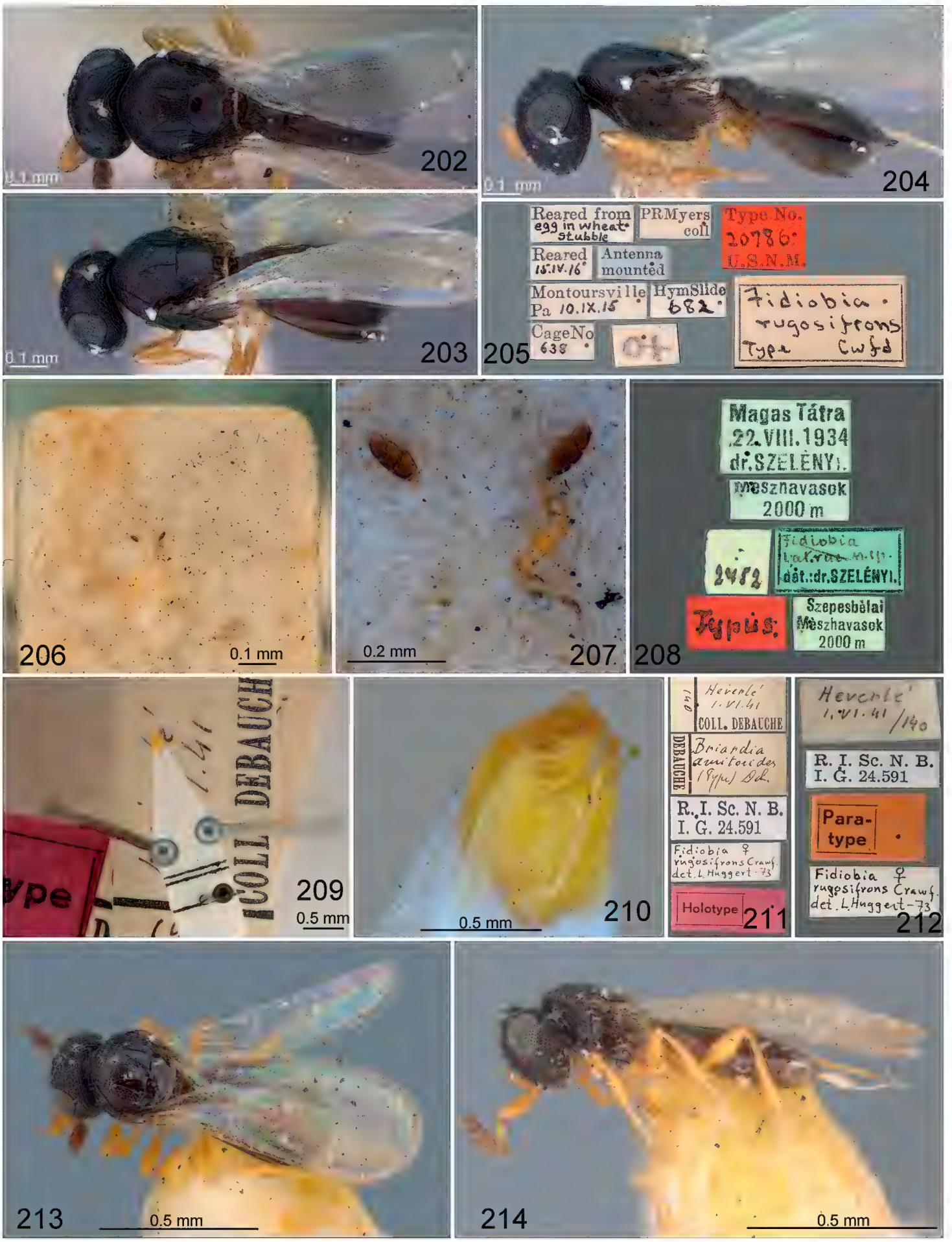
Germany: 2♀, Kiel, leg. Boness M. (BMNH).

Romania: 1♀, Iași, Breazu, 47.2187°N, 27.5270°E, 30.vi.2002, leg. Popovici O. (SN) (OPPC0695); 1♀, Suceava, Todirescu, 47.4455°N, E256138°, 24.vii.2004, leg. Popovici O. and Fusu L. (SN) (OPPC0803); 1♀, Tulcea, Măcin, 45.2358°N, 28.1995°E, 10.vii.2004, leg. Mitroiu M. (SN) (OPPC0694); 1♂, Botoșani, Roma, 1.v.2005, 47.8362°N, 26.5806°E, leg. Popovici M. (SN) (OPPC0691); 1♀, Iași, Botanical Garden, 47.1859°N, 27.5511°E, 21.vi.2005, leg. Popovici O. (SN) (OPPC0812); 1♀, Iași, Bârnova, 46.9938°N, 27.5906°E, 8.vii.2008, leg. Popovici M. (SN) (OPPC0697); 1♀, Iași, Bârnova, 46.9863°N, 27.5855°E, 11.vii.2009, leg. Popovici O. and Popovici M. (SN) (OPPC0490); 1♀, Bacău, Comănești, 46.4288°N, 26.4368°E, 26–31.iv.2013, leg. Pintilioaie A. (SN) (OPPC0576); 1♀, Suceava, Gura Humorului, 47.5563°N, 25.8588°E, 12.v.2013, leg. Bârsan I, (MT) (OPPC0005); 1♀, Tulcea, Periprava, 46.99897°N, 25.94753°E, 8.vii.2015, leg. Popovici O. (SS) (OPPC0829); 1♀ (brachypterous specimen), Suceava, Neagra Șarului, 47.26056°N, 25.35278°E, 3.vii.2011, leg. Noyes JS. (SS) (OPPC0474); 1♀, Iași, Bârnova, 46.9865°N, 27.5839°E, 26.vi.2016, leg. Popovici O. (SS) (OPPC0006); 2♀, Botoșani, Popeni, 47.836832°N, 26.495561°E, 29.vii.2016 leg. Popovici O. (SS) (OPPC007, 0566); 1♂ and 1♀, Harghita, Sovata, 46.569175°N, 25.081698°E, 27.v.2018, leg. Popovici O. (SS) (OPPC0002 and OPPC0003).

Distribution. Asia: Central Altai, Kazakhstan, Central Asia (Kozlov 1978); Mongolia (Buhl 2004); **North America**: **Canada** (Evans and Peña 2005); **USA** [Pennsylvania (Crawford 1916); Indianapolis (Evans and Peña 2005)]; **Central America**: Panama (Evans and Peña 2005); **Europe**: Sweden, Norway (Buhl 1999a); Romania (Fabritius 1974); Moldavia (Kozlov 1978); Spain (Buhl 2000); Slovacia, Czech Republic (Popovici and Buhl 2010). In our material we identify *F. rugosifrons* from: Belgium, Estonia, France, Germany, Hungary and Romania (Fig. 318).

Biology. reared from the eggs of *Hypera punctata* (F) (Coleoptera: Curculionidae) on *Triticum* sp. (Vlug 1995). This species prefers grassland habitats, e.g., meadows and glades.

Diagnosis. *Fidiobia rugosifrons* is very close to *F. rugosifronsoides* and *F. roatai* because of the general habitus and the sculpture of the head, espeacially the frons. Based on this revision, the main characteristics of *F. rugosifrons* are the totally sculptured internotaular area (unsculptured in *F. roatai*, or partially sculptured in *F. rugosifronsoides*), totally sculptured lateral pronotal area (sculptured only on the dorsal half in *F. rugosifronsoides* and only in the dorsal third in *F. roatai*) and A3 1.5 times as long as A4 (A3 1.8–2.0 times as long as A4 in *F. roatai* and 1.2–1.3 times in *F. rugosifronsoides*).



Figures 202–214. *Fidiobia rugosifrons*, type specimens: **202–205** Holotype of *F. rugosifrons* Crawford **206–208** Holotype of *F. tatrae* Szelényi **209–211** Holotype of *Rosneta phryne* Debauche **212–214** Paratype of *Rosneta phryne* Debauche.

Comments. The sculptured internotaular area was mentioned by Crawford (1916) in the original description, "the head completely covered with sculpture as is mesonotum except for broad furrows", and also by Kozlov (1978, 1987), Buhl (1999a) and

Popovici and Buhl (2010). Fouts (1924) added to the sculpture of mesonotum a new character, the ratio of A3/A4, mentioning "fourth antennal joint distinctly shorter than the third". This antennal character was used later by Kieffer (1926) and Evans and Peña (2005). Fabritius (1974) considered that in *F. rugosifrons* A3 is two times as long as A4, but in his drawing (p. 294, Abb. 2) A3 appears to be longer. Szelényi (1941) described his new *Fidiobia tatrae* and separated it from *F. rugosifrons* based on the shape of antennomeres, but without details concerning this difference. Regarding the sculpture of the mesoscutum from the description of Szelényi, it is clear that the type of sculpture is the same as that of *F. rugosifrons*, but it is not clear if the internotaular space is entirely sculptured.

We located the type of *F. tatrae* in HNHM, but the specimen is essentially lost. On the card remain only the right antenna, clava of the left antenna, legs on the right side, and middle and hind legs from the left side (Figs 206, 207). Studying the antenna on the card and the drawing of Szelényi (1941), it can be observed that A3 is longer than A4, so we find no reason to consider *F. tatrae* different from *F. rugosifrons*. Based on this, we agree with Jansson (1956) who treated these two species as synonyms.

Debauche (1947), apparently unaware of *F. rugosifrons*, described a new species, *Rosneta phyrine*. Jansson (1956) presented informative drawings of the habitus and antenna (here can be observed the ratio between A3 and A4) in *Rosneta phryne* and considered it a junior synonym of *F. rugosifrons*. By studying the type material of *Rosneta phryne* stored in Institut royal des Sciences naturelles de Belgique, Bruxelles, we observed that the holotype was destroyed; on the points remain only the femora, tibiae and the tarsi from the middle and hind legs (left side), and from the middle leg (right side) and hind wing from the right side. The paratypes (some of them topotypic with the holotype) perfectly match our concept of *F. rugosifrons*.

Prior to this study, we believe that the name "*rugosifrons*" was used for a complex of species including *F. rugosifrons*, *F. rugosifronsoides* and *F. roatai*. Although *F. rugosifrons* was considered as a species with a wide distribution (Fig. 318), we found it only in Estonia, France, Germany, Hungary and Romania. For the first time, a specimen in the Romanian material was identified as a female with reduced wings and this reduction appears not to be a teratology, as it otherwise conforms to our concept of *F. rugosifrons*.

22. *Fidiobia rugosifronsoides* Popovici, Lahey & Talamas, sp. nov.

https://zoobank.org/071D11EE-A8C7-46A2-B6CB-78D53497B13F

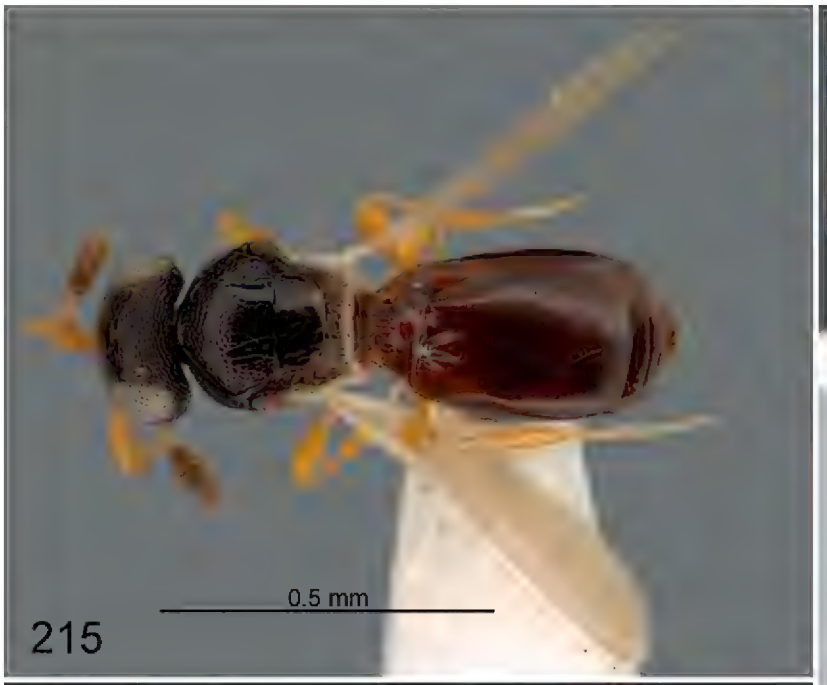
Figs 215–222, 288, 289, 319

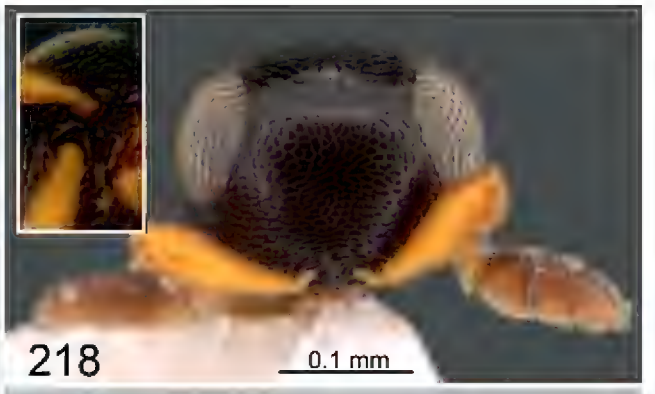
Description. Female. Body length: 0.9–1.0 mm. Colour of body (Figs 215, 216): bicoloured, head and mesosoma black to dark brown, metasoma brown with T1 and sometimes the proximal half of T2 lighter, almost pale in the Asian material.

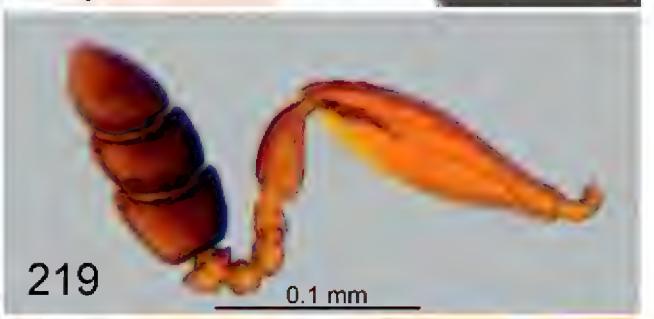
Head (Figs 217, 218, 221). Colour of head: black. Sculpture of head: areolate rugulose. Sculpture of occiput: areolate rugulose. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL

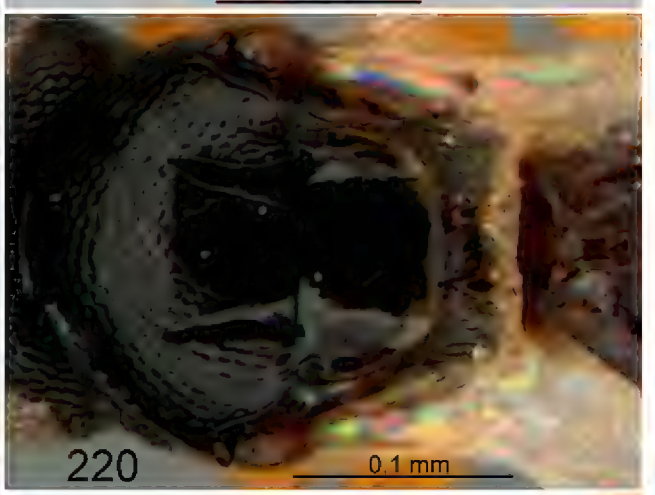
equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: areolate rugulose. Sculpture of frons immediately dorsal to toruli: areolate rugulose. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 219). Colour of A1: light brown. Colour of clava: striking different from the rest of antenna (clava brown, rest of antenna yellow). Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

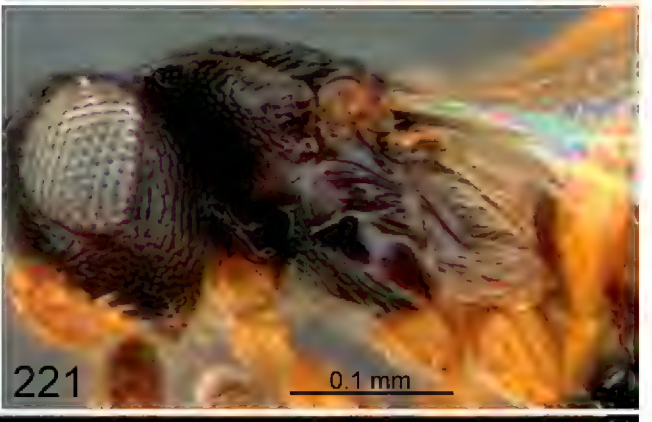
Mesosoma (Figs 220, 221). Colour of mesosoma: black. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: present. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent in posterior half, reticulate coriaceous anteriorly. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: converging posteriorly. Length of notauli: half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: the same with the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: dense, long setae on posterodorsal half. Setation of ventral metapleural area: dense, long setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: visible as a ridge on the anteroventral mesopleuron connected with a pit. Mesopleural carina: present. Metapleural sulcus: absent. ***Wings*** (Fig. 222a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 the length of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated.

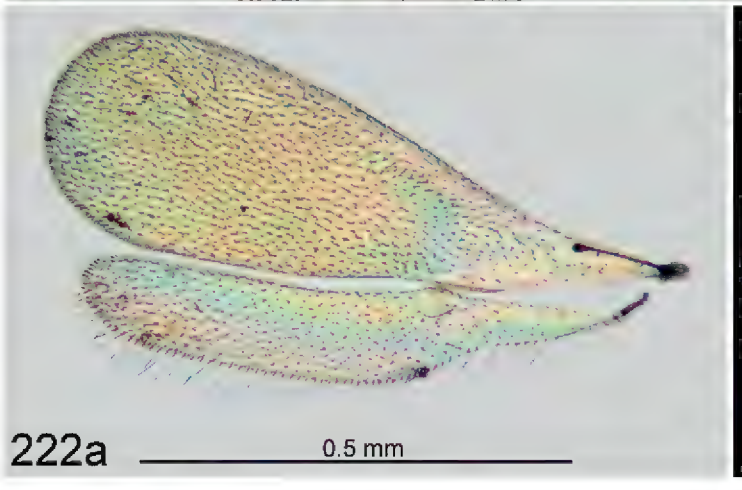


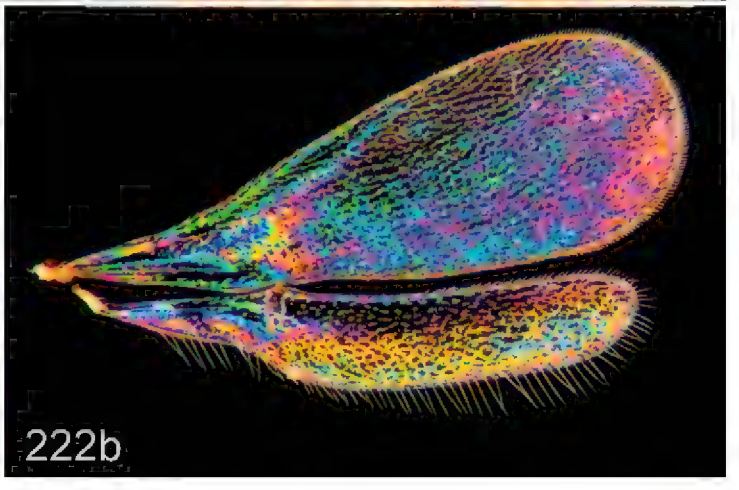












Figures 215–222. *Fidiobia rugosifronsoides*: **215** habitus, dorsal view (OPPC0681) **216** habitus, lateral view (OPPC0593) **217** head, dorsal view **218** head, frontal view **219** antenna (♀) (OPPC0040) **220** mesosoma, dorsal view **221** mesosoma, lateral view **222a** wings (OPPC0040) **222b** WIP.

Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: light brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: light brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

Metasoma (Figs 215, 216): Tergites posterior of T2 may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 3 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Male. unknown.

Etymology. This species is named for its similarity to *F. rugosifrons*.

Material examined. 8♀. Finland: ***Holotype*** 1♀, Lkor, Sodankylä, Jeesiö, Nurmiharju, 67.508°N, 26.035°E, 11–18.vii.2014, leg. Flinck J. and Aaltio J. (MT) (OOPC0042).

Paratypes: Estonia: 1♀, 1.5 km NE Sööru, 58.66111°N, 26.88531°E, 4–11.vii.2011, leg. Soon V. (SN) (OPPC0593); 2♀, 1.5 km NE Sööru, 58.66111°N, 26.88531°E, 21.vii–13.viii.2011, leg. Soon V. (SN) (OPPC0681, 0652).

Finland: 1♀, Lkor, Sodankylä, Jeesiö, Nurmiharju, 67.508°N, 26.035°E, 11–18.vii.2014, leg. Flinck J. and Aaltio J. (MT) (OOPC0041); 1♀, Lkor, Sodankylä, Jeesiö, Nurmiharju, 67.508°N, 26.035°E, 18–25.vii.2014, leg. Flinck J. and Aaltio J. (MT) (OOPC0040).

Sweden: 1♀, Småland, Asa, 57.16667°N, 14.78333°E, 6.vi.2007, leg. Shevtsova E. (OPPC0731); 1♀, Skåne, Häckeberga, 55.58333°N, 13.41667°E, 5.vii.2006, leg. Hansson C. and Shevtsova E. (OPPC0730).

Non-type material. China: 1♀, Beijing Prov. Mentougo, 39.987°N, 115.5246°E, 28.vii.2002, leg. Melika G. (CNCI).

South Korea: 8♀, Gangwon-do, Chuncheon Nam-myeon, Magog-li, Hongchen river, 37.72977°N, 127.5765°E, 7.viii–14.ix.2004, leg. Tripotin P. (MT) (OPPC0764, 0741, 0723, 0781, 0749, 0640, 0828, 0487); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.iv.–20.v.2007, leg. Tripotin P. (MT) (OPPC0654); 3♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripotin P. (MT) (OPPC0049, 0050, 0004).

Distribution. Estonia, Finland, Sweden, China, South Korea (Fig. 319).

Biology. unknown.

Diagnosis. *Fidiobia rugosifronsoides* is close to *F. rugosifrons*. The main differences between these two species consist of the sculpture of the area between the notauli (smooth in the posterior half in *F. rugosifronsoides* and totally sculptured in *F. rugosifrons*), in the ratio of A3 to A4 (A3 1.2 times as long as A4 in *F. rugosifronsoides* and A3 1.5 times as long as A4 in *rugosifrons*) and in the sculpture of the lateral pronotal area (entirely sculptured in *F. rugosifrons* and sculptured only in the dorsal half in *F. rugosifronsoides*).

Comments. In our material we found this species in Europe in Estonia (here, it is sympatric with *F. rugosifrons*), Finland and Sweden and in Asia in China and South Korea. Striation below the tegula and longitudinal sculpture below the mesofemoral depression are more evident in specimens from Europe than in the Asian material; the striae of T1 are longer and coarser in the European material; T1 and sometimes the proximal half

of T2 is lighter, almost pale in the Asian material and brown in the European material; notauli are broader, and the distance between the medial margin of the notaulus near the transscutal articulation is greater in the European material than in the Asian material.

23. *Fidiobia sashai* Popovici, Talamas & Lahey, sp. nov.

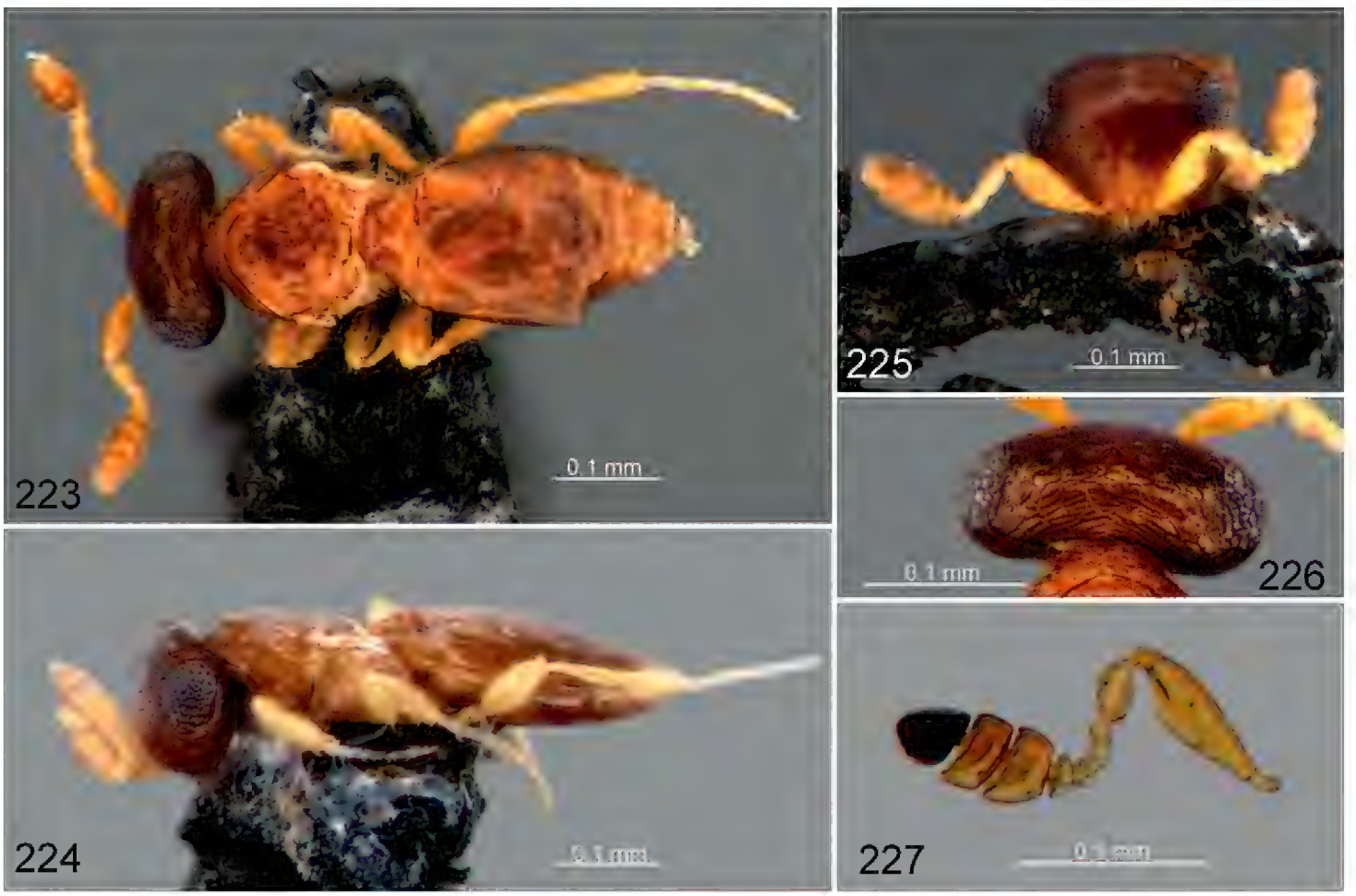
https://zoobank.org/CAA5728C-E3DE-4AF2-A884-08C407F8BBD8

Figs 223–227, 293, 320

Description. Female. Body length: 0.6 mm. Colour of body: xanthic, brown head and light brown mesosoma and metasoma (Figs 223, 224).

Head (Figs 225, 226). Colour of head: brown. Sculpture of head: alutaceous. Sculpture of occiput: transverse imbricate coriaceous. Ocellar prominence: absent. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL around 2 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons, but smoother. Epitorular carina: present. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 227). Colour of A1: light brown. Colour of clava: almost similar to the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma. Colour of mesosoma: light brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: cervical pronotal area broader than lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: flat. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: incomplete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: flat. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: present. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural



Figures 223–227. *Fidiobia sashai*: **223** habitus, dorsal view (Holotype) **224** habitus, lateral view **225** antenna and head, frontal view **226** head, dorsal view **227** antenna (♀).

carina: present on the entire carina. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, short setae on posterodorsal half. Setation of ventral metapleural area: sparse, short setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: absent. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: present, complete. ***Wings.*** micropterous. Apex of fore wing: rounded. Colour of fore wing: NA. Transverse brown band on fore wing: NA. Submarginal vein in fore wing: not visible. Length of submarginal vein in fore wing: NA. Spectral veins on fore wing: NA. Marginal setae of fore wing: absent. Disc of fore wing: with no setae. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma. posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: light brown. Lateral setae of T1: 2 pairs. Colour of T2: light brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

Etymology. This species is named after Oleksandr "Sasha" Varga, who collected the holotype specimen.

Male. unknown.

Material examined. 1♀. Ukraine: ***Holotype*** 1♀, Reg. Mochary, 5 km NE of Bogorodchany, 48.84755°N, 24.59081°E, 16.vi–4.vii.2014, mixed forest, leg. Varga O. (MT) (OPPC0822).

Distribution. Ukraine (Fig. 320).

Biology. unknown.

Diagnosis. *Fidiobia sashai* is the only Palearctic species of the genus with an incomplete transscutal articulation, which is visible only laterally. It is superficially similar to some brachypterous specimens of *F. hofferi*, but it differs by the incomplete transscutal articulation and the absence of notauli. In *F. hofferi* the transscutal articulation is complete and the notauli are present.

24. *Fidiobia striatitergitis* (Szabó, 1962)

Figs 9, 10, 13, 16, 19, 21, 25, 29, 30, 33, 36, 228–240, 282, 321

Isolia striatitergitis Szabó, 1962: 239; Kozlov 1971: 61; Kozlov 1978: 657; Alekseyev 1979: 764; Kozlov 1987: 1200; Masner and Huggert 1989: 79; Vlug 1995: 34.
Fidiobia gordoni Popovici and Buhl 2010: 1137.
Fidiobia striatitergitis: Kamalanathan et al. 2019: 471, 472 (type information, generic transfer)

Description. Females (Figs 228, 229). Length of body: 1.1–1.3 mm. Colour of body: bicoloured, head and mesosoma dark brown, T1 light brown, T2–T5 brown, T6 brown becoming lighter brown at apex (Fig. 228).

Head (Figs 230, 231, 233, 235, 236). Colour of head: dark brown. Sculpture of head: reticulate rugose. Sculpture of occiput: reticulate rugose. Ocellar prominence: present. Preocellar depression: present. Paraocellar depressions: absent. OOL / ocellar diameter: OOL around 3 times ocellar diameter. Orientation of lower half of inner orbits: visibly convergent. Sculpture of frons immediately anterior to ocellus: reticulate rugose. Sculpture of frons immediately dorsal to toruli: the same as the sculpture on the rest of frons. Epitorular carina: absent. Distance between toruli: equal to the transverse diameter of torulus. Setation of clypeus: six setae. Malar sulcus: absent. ***Antenna*** (Figs 232, 237, 238). Colour of A1: brown. Colour of clava: the same as the color of scapus. Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): 2:2:1 (Figs 232b, 238).

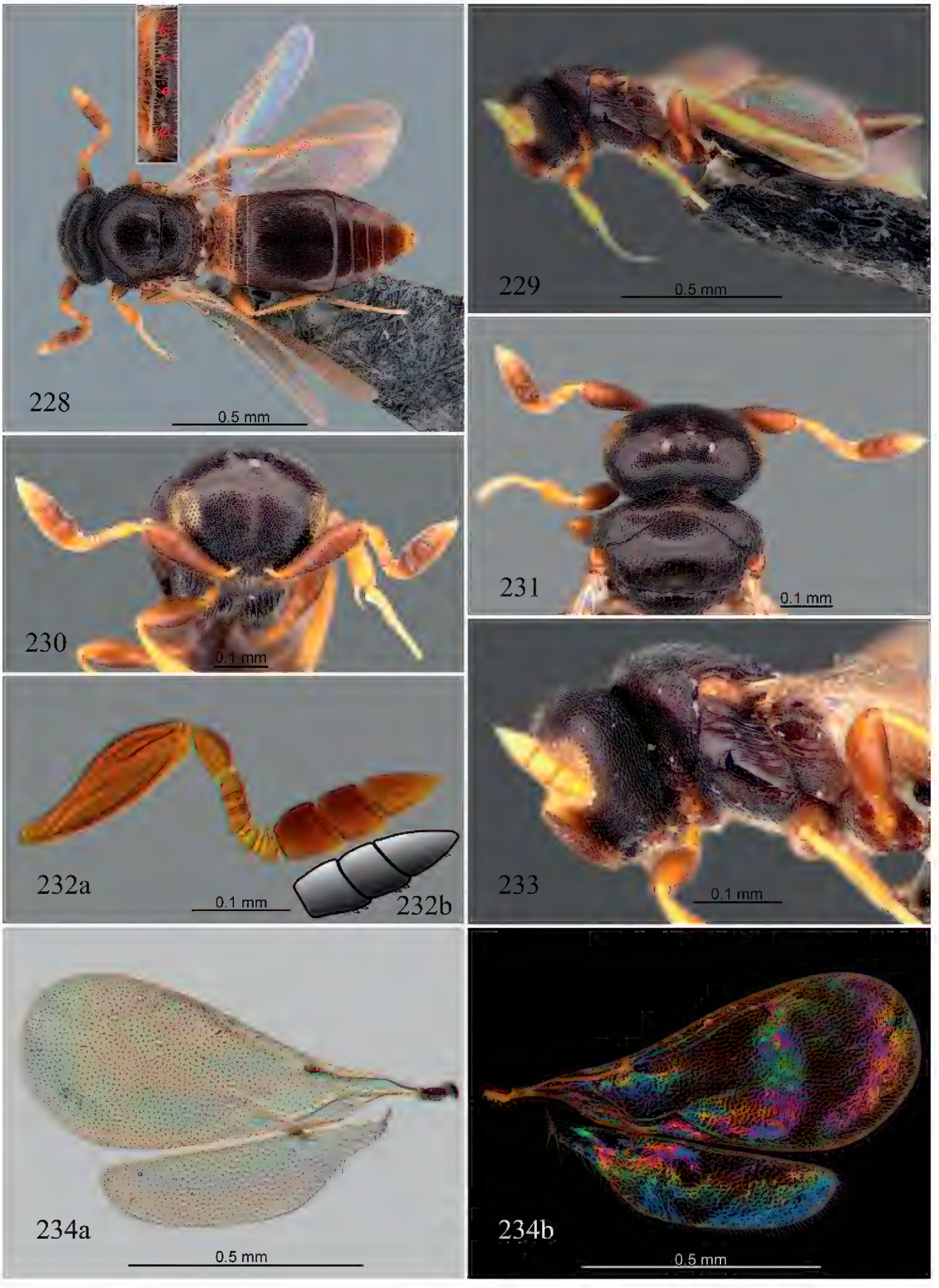
Mesosoma (Figs 228, 233, 239, 240). Colour of mesosoma: dark brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: large, collarlike. Transverse pronotal sulcus: present. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: present. Sculpture of internotaular area: smooth, almost absent at least in posterior half, reticulate coriaceous anteriorly. Notauli: present, incised. Shape of notauli: dilated posteriorly and rounded anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: at most 0.3 times as long as length of mesoscutellum, measured along midline. Length of notaulus / maximum width of notaulus: 3–4 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: present, complete.

Fovea on scuto-scutellar sulcus: present laterally. Mesoscutellum: weakly convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae not abutting posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: reticulate rugose to longitudinally strigose. Posterior mesoscutellar sulcus: present. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: present. Transverse carina between lateral propodeal carinae: absent. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present only on the posterior half of the vertical part. Plica: visible. Posterior end of plica: free, converging with lateral propodeal carina. Foamy structure on plica: present, as a single flange. Foamy structure on metapleural carina: present, only posteriorly. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, long setae in 3–4 longitudinal rows. Setation of ventral metapleural area: rare, long setae on the entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: present, visible as a ridge originated in the anteroventral mesopleuron, curving dorsally at anterior end. Mesopleural carina: absent. Metapleural sulcus: absent. ***Wings*** (Fig. 234a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: present (medial – M+Cu). Marginal setae of fore wing: absent. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: light brown. Colour of middle femora: brown. Colour of middle tibiae: light brown. Colour of middle tarsus: light brown. Colour of hind femora: brown. Colour of hind tibiae: light brown. Colour of hind tarsus: light brown.

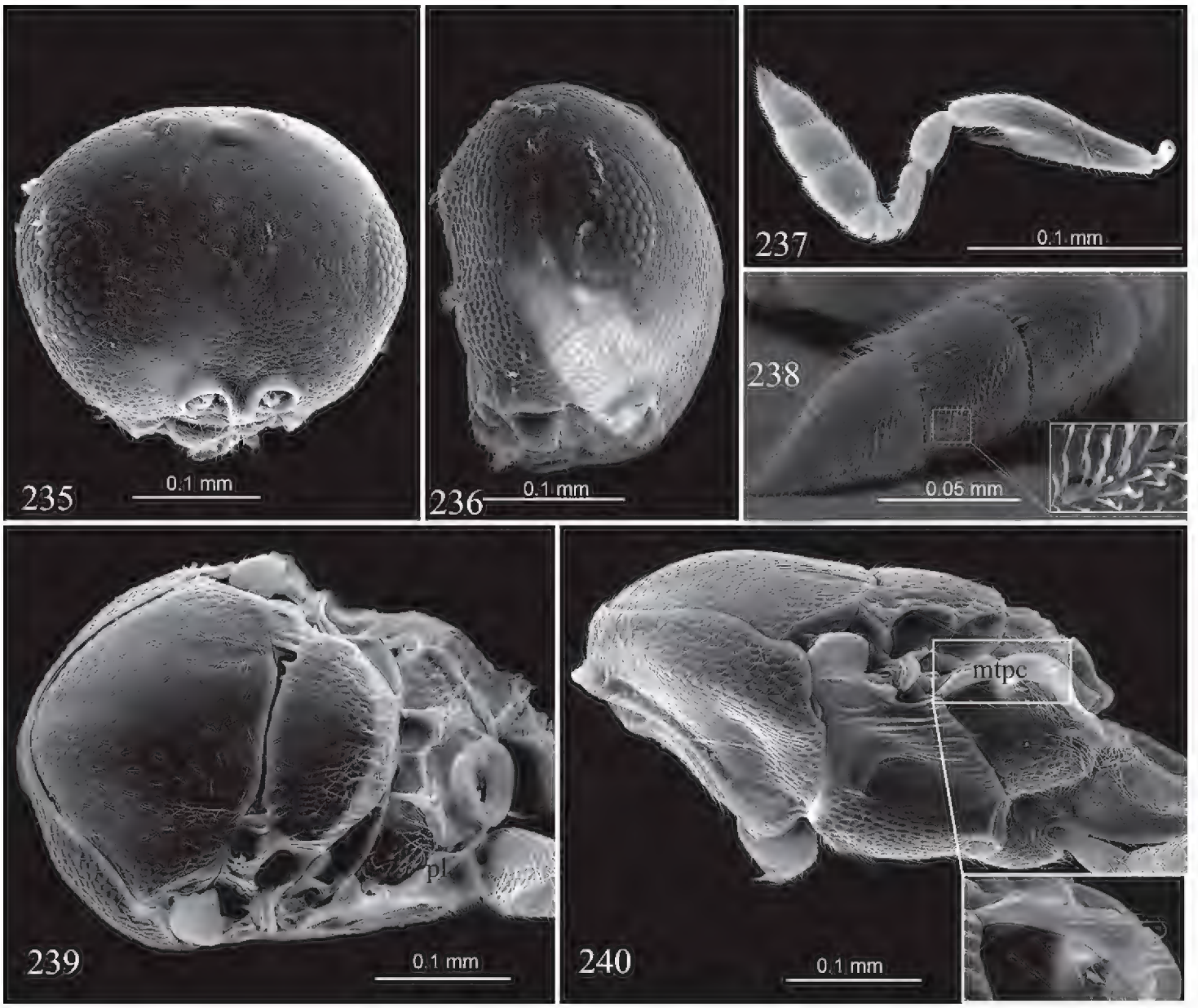
Metasoma (Figs 36a, b, 228): Tergites posterior of T2 exposed and clearly visible. Shape of T1: subrectangular. Colour of T1: reddish-brown. Lateral setae of T1: absent. Colour of T2: brown. Shape of T2: transverse or at most as long as wide. Anterior pits of T2: distinctly separated (Fig. 36a). Sculpture of T2, lateral to anterior pits of T2: strigose on /most the length of T2. Colour of T3–T6: T3-T5 the same as T2, apex of T6 lighter.

Male. We did not study the male of this species, the only known male being the type of this species described under the name of *Isolia striatitergitis* Szabó. High quality photos of the male are presented in Veenakumari et al. (2019). It is similar to the female, except the antenna is almost filiform.

Material examined. 12♀. Greece: ***Paratypes*** of *F. gordoni* Popovici & Buhl, 2010: 3♀, Kerkini Lake Nat. Park, Bistritza river, marsh, 41.3783°N, 23.3663°E, alt. 80 m, 21.vi.2008, leg. Popovici O., Fusu L. and Ramel G. (YPT), (OPPC); 2♀, Kerkini Lake Nat. Park, Lithotopos, Ecotourism site, 41.3043°N, 23.217°E, 19.vi.2008, leg. Popovici O. and Fusu L. (SN) (OPPC).



Figures 228–234. *Fidiobia striatitergitis*: **228** habitus, dorsal view (OPPC0710) **229** habitus, lateral view **230** head, frontal view **231** head, dorsal view **232a** antenna **232b** sensillar formula **233** head and mesosoma, lateral view **234a** wings (OPPC0725) **234b** WIP.



Figures 235–240. *Fidiobia striatitergitis* (SEM): **235** head, frontal view **236** head, lateral view **237** antenna (♀) **238** papillary sensillum **239** mesosoma, dorsal view **240** mesosoma, lateral view.

Non-type material. 1♀, Neo Petritsi, 41.3138°N, 23.2765°E, 30.vi–6.vii.2008, leg. Ramel G. (MT) (OPPC 0581); 1♀, Kerkini Lake Nat. Park, Procom site, 41.3772°N, 23.3663°E, 19–25.ix.2007, leg. Ramel G. (MT) (OPPC 0704); 1♀, Kerkini Lake Nat. Park, Procom site, 41.3772°N, 23.3663°E, 23–29.v.2007, leg. Ramel G. (MT) (OPPC 0705); 1♀, Kerkini Lake Nat. Park, Procom site, 41.3772°N, 23.3663°E, 27.vi–3.vii.2007, leg. Ramel G. (MT) (OPPC 0724); 1♀, Kerkini Lake Nat. Park, near Neo Petritsi, 41.3138°N, 23.2765°E, 16–22.vi.2008, leg. Ramel G. (MT) (OPPC 0710); 2♀, Kerkini Lake Nat. Park, Pumping station site, 41.2135°N, 23.1033°E, 23–29.v.2007, leg. Ramel G. (MT) (OPPC 0709, OPPC 0725).

Distribution. Hungary (Szabó 1962), Greece (Fig. 321).

Biology. The host is unknown. Based on the collection data, this species prefers wet habitats with lush vegetation beside rivers.

Diagnosis. *Fidiobia striatitergis* may be recognized by the reticulate-rugose mesoscutellar disc, strigose T2, metapleural carina posterodorsally prolonged into a strong tooth, lateral propodeal carina and metasomal depression with no foamy structures.

Comments. *Fidiobia striatitergitis* was originally described in *Isolia* Förster based on a single male specimen (Szabó 1962). Veenakumari et al. (2019) transferred *Isolia*

striatitergitis to *Fidiobia*. Popovici and Buhl (2010) described this species as *F. gordoni*, which we here recognize as a junior synonym of *F. striatitergitis*. Although Szabó's material is represented by a single male and the material of Popovici and Buhl (2010) consists only of females, the main apomorphies of this species (reticulate-rugose mesoscutellar disc, substrigulate T2, metapleural carina posterodorsally prolonged into a strong tooth, lateral propodeal carina and metasomal depression with no foamy structure) are not sexually dimorphic. Therefore, we have confidence that these specimens are conspecific.

25. *Fidiobia synergorum* (Kieffer, 1921)

Figs 241–252, 294, 295, 322

Fahringeria synergorum Kieffer, 1921: 69; Kieffer 1926: 844; Maneval 1940: 117; Masner and Huggert 1989: 69.

Platyllotropa gallicola Szelényi, 1938: 126; Maneval 1940: 115; Oglobin 1944: 156; Kozlov 1971: 61; Masner and Huggert 1989: 69.

Fidiobia synergorum: Masner and Huggert 1989: 67, 69; Buhl 1999a: 18; Buhl 1999b: 12; Evans and Peña 2005: 62; Popovici and Buhl 2010: 1151.

Description. Female. Body length: 0.8–0.9 mm. Colour of body: melanic (Figs 241, 242). ***Head*** (Fig. 243). Colour of head: brown. Sculpture of head: alutaceous. Sculpture of occiput: alutaceous. Ocellar prominence: present. Preocellar depression: absent. Paraocellar depressions: absent. OOL / ocellar diameter: OOL around 2 times ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons, but more transverse. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 245). Colour of A1: brown. Colour of clava: almost similar to the rest of antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: absent. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 241, 243, 244). Colour of mesosoma: brown. Mesosoma: strongly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along of anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: entirely sculptured. Antero-admedian line: absent. Mesoscutum: flat. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: flat. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae not abutting posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum:

absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: absent. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: divergent posteriorly. Foamy structure on lateral propodeal carina: absent. Plica: visible. Posterior end of plica: converging with metapleural carina. Foamy structure on plica: absent. Foamy structure on metapleural carina: absent. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: absent. Setation of ventral metapleural area: absent. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: complete, straight (Fig. 244). Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 247a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: present, well visible. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: brown, with lighter basal and apical ends. Colour of fore tarsus: yellow with darker pretarsus. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: brown with lighter basal and apical ends. Colour of middle tarsus: yellow with darker pretarsus. Colour of hind femora: yellow. Colour of hind tibiae: brown with lighter basal and apical ends. Colour of hind tarsus: yellow with darker pretarsus.

Metasoma (Figs 241, 251): posterior of T2 some or all tergites may be retracted under T2. Shape of T1: subrectangular. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: T3–T5 the same as T2, T6 lighter.

Male. similar to female, but different in the structure of the antenna (Fig. 246).

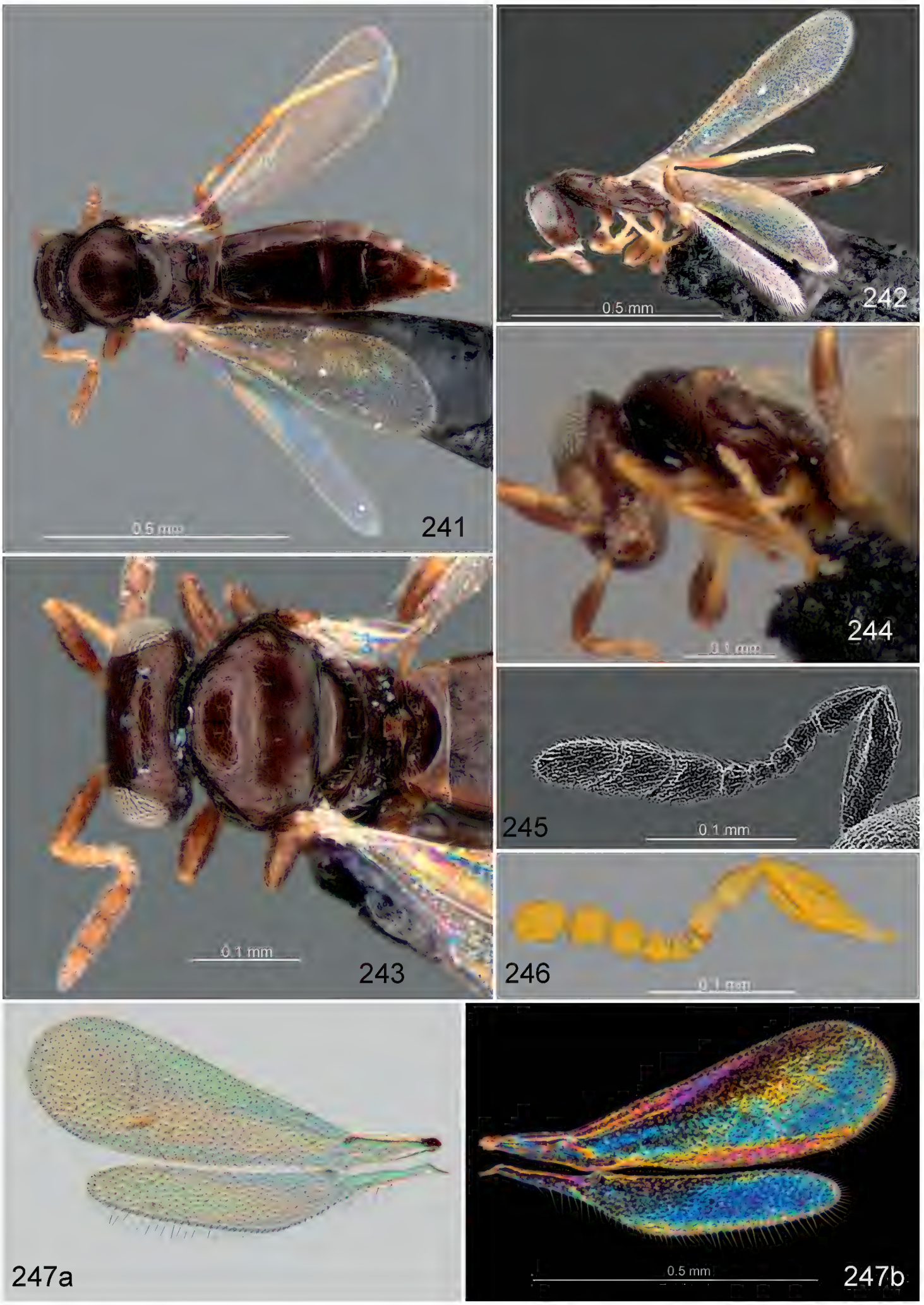
Material examined. 73♀ and 20♂. Greece: 1♀, Kerkini Mts., near Neo Petritsi, 41.3251°N, 23.2500°E, 26.v–1.vi.2008, leg. Ramel G. (MT), (OPPC0825).

Hungary: 1♀, Hym. Typ. No. 3373. Mus. Budapest, holotype of *Platyllotropa gallicola* Szelènyi, Szentendre, Izbég, 47.682°N, 19.043°E, ?.vii.1931, leg. Szelènyi G. (ex. *Aphelonyx cerricola* Gir.) (Figs 248–252).

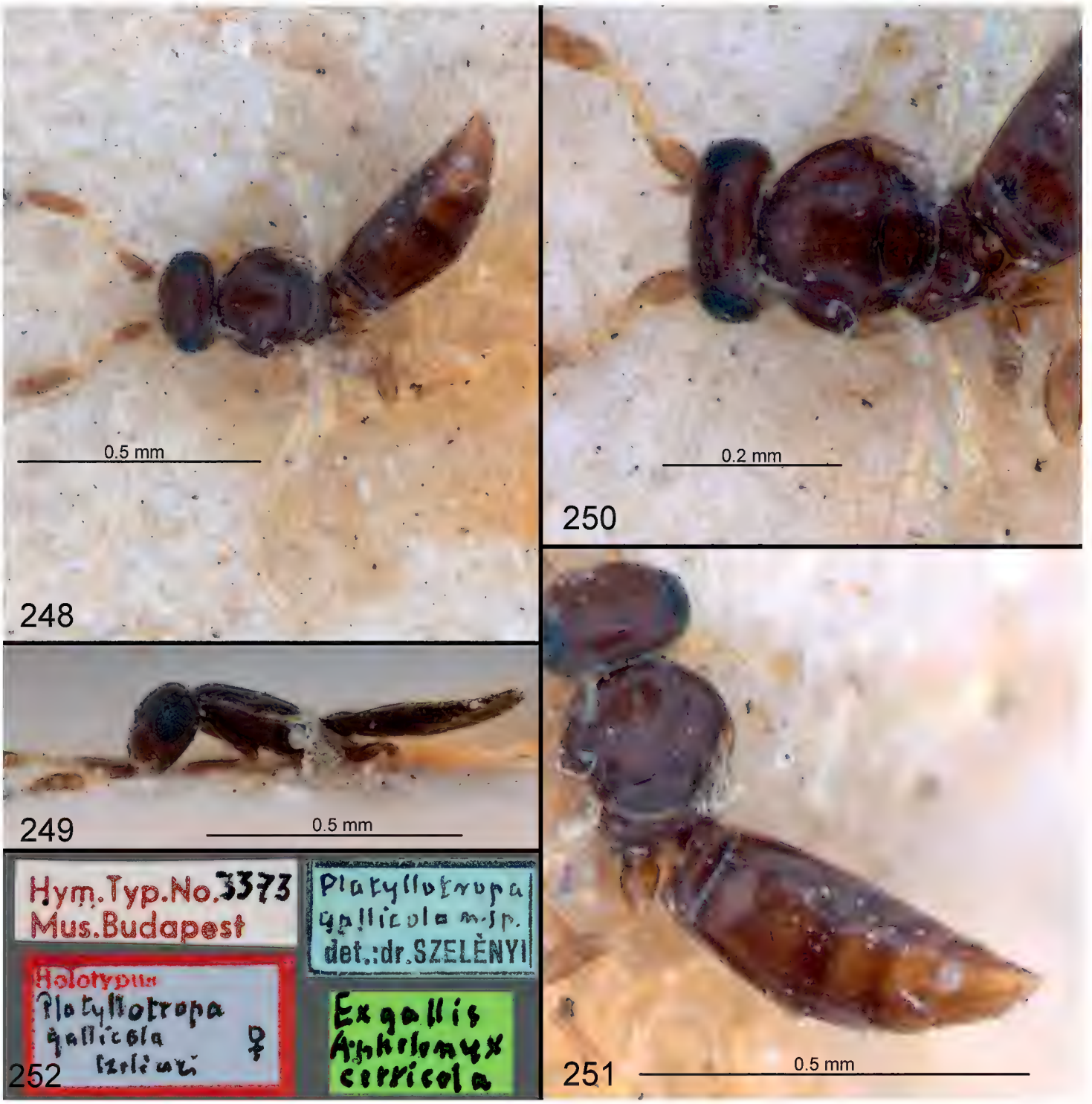
Norway: 1♀, Buskerud, Rollag, Bråtåsen, 60.0188°N, 9.2493°E, 1–31.viii.1994, leg. Hansen L.O. (MT).

Slovakia: 54♀, 19♂, Banská Štiavnica, 48.44°N, 18.89°E, 18.vii.1955 (leg. Capek M.) (reared from *Aphelonyx cerricola*) (NMPC); 2♀ and 1♂, Banská Štiavnica, 48.44°N, 18.89°E, 18.vii.1955, reared from *Aphelonyx cerricola*, leg. Capek M., (OPPC0799; OPPC0800 and OPPC0798).

Ukraine: 8♀, Transcarpathia reg., Tyachiv distr., 6.5 km N of Mala Ugolka, 48.2609°N, 23.6169°E, 12–31.v.2015, beech forest, leg. Varga O. (MT),



Figures 241–247. *Fidiobia synergorum*: **241** habitus, dorsal view (OPPC0217) **242** habitus, lateral view **243** head and mesosoma, dorsal view **244** mesosoma, lateral view **245** antenna (♀) (OPPC0800) **246** antenna (♂) (OPPC0798) **247** wings (OPPC0824) **247b** WIP.



Figures 248–252. Holotype of *Platyllotropa gallicola* Szelényi: **248** habitus, dorsal view **249** habitus, lateral view **250** head and mesosoma, dorsal viev **251** body without wings **252** data labels.

(OPPC0163, OPPC0164, OPPC0159, OPPC0160, OPPC0178, OPPC0217, OPPC0218, OPPC0824); 2♀, Transcarpathia reg., Svydovets, 2–3 km NW of Kvasy, 48.1524°N, 24.2662°E, 7.v–5.vi.2014, beech forest, leg Varga O. (TT) (OPPC0229, OPPC0231); 3♀, Transcarpathia reg., Svydovets, 2–3 km NW of Kvasy, 48.1524°N, 24.2662°E, 5–29.vi.2014, beech forest, leg Varga O. (TT) (OPPC0143, OPPC0147, OPPC0187); 1♀, Mochary reg., 5 km NE of Bogorodchany, 48.8475°N, 24.5908°E, 8–22.v.2015, mixed forest, leg. Varga O. (MT) (OPPC0162).

Distribution. Austria (Kieffer 1926), Greece, Hungary, Norway, Slovakia, Ukraine (Fig. 322).

Biology. This species was reportedly reared from *Synergus gallaepomiformis* Fonscolombe (Hymenoptera: Cynipidae) on *Quercus* sp., *Biorhiza pallida* Olivier (Hyme-

noptera: Cynipidae) on *Quercus* sp., and *Aphelonyx cerricola* Gir. (Hymenoptera: Cynipidae) (Vlug 1995), but a direct connection among *F. synergorum* and these cynipids was not established through dissections. This species seems to prefer forested habitats rather than grassland. In Ukraine it was collected in beech and mixed forests and the most effective methods were the trunk mounted trap and Malaise trap.

Diagnosis. *Fidiobia synergorum* is conspicuous because the body is strongly depressed dorsoventrally, the transepisternal line is straight and almost complete (Fig. 244), T1 is strongly transverse, almost rectangular and the median carina between the lateral propodeal carinae is absent (Fig. 295). *Fidiobia synergorum* may be confused with *F. hispanica* but can be easily separated from that species by the different number of antennomeres (nine in *F. synergorum* and ten in *F. hispanica*), transepisternal line (absent, or at most as a trace in *F. hispanica*) and by the median carina between the lateral propodeal carinae (present in *F. hispanica*).

Comments. In most *Fidiobia* with a 9-merous antenna, T1 is trapezoidal, whereas a transverse and almost rectangular T1 is characteristic for species of *Fidiobia* with 10-merous antennae. The knob of the submarginal vein of the fore wing is visibly curved downward as in species of *Acerotella* Masner. Specimens belong to this species were observed with the 8-merous teratological antennae (symphysis – A3–A4) (Popovici and Buhl 2010). In the Palearctic region, a similarly depressed body can be found in *Allotropa helenae* (Kozlov).

26. *Fidiobia tripotini* Popovici & Masner, sp. nov.
https://zoobank.org/A8A57C94-6441-4F45-969F-7A4EED9E4FB3
Figs 253–261, 323

Description. Female. Body length: 0.9–1.1 mm. Colour of body: bicoloured, head and mesosoma medium to dark brown, metasoma light to medium brown with T1 and sometimes apex of T6 lighter (Figs 253–255).

Head (Figs 256, 257). Colour of head: dark brown with lighter lower frons. Sculpture of head: alutaceous. Sculpture of occiput: alutaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: almost parallel. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: transverse alutaceous. Epitorular carina: absent. Distance between toruli: toruli touch each other. Setation of clypeus: two setae. Malar sulcus: present (Fig. 257). ***Antenna*** (Fig. 258a). Colour of A1: yellow. Colour of clava: striking different from the rest of the antenna (clava brown, rest of antenna yellow). Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: absent. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): 2:2:1 (Fig. 258b).

Mesosoma (Figs 259, 260). Colour of mesosoma: dark brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: present mostly as lat-

eral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: not dilated. Lateral pronotal area: sculptured only on the dorsal half. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: absent. Shape of notauli: NA. Outer edge of notauli: NA. Orientation of inner edge of notauli: NA. Length of notauli: NA. Length of notaulus / maximum width of notaulus: NA. Distance between notauli: NA. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: absent. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: fused with lateral propodeal carina. Foamy structure on plica: present, fused with foamy structure from lateral propodeal carinae. Foamy structure on metapleural carina: present, only posteriorly. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: sparse, short setae on posterodorsal half. Setation of ventral metapleural area: dense, short setae on posteroventral half. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: complete, straight. Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 261a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: present (median and subdiscoidal). Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Figs 253, 254): Tergites posterior of T2 exposed and clearly visible. Shape of T1: subrectangular. Colour of T1: light brown. Lateral setae of T1: absent. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2, sometimes apex of T6 lighter.

Etymology. This species is named after Pierre Tripotin, collector of the holotype specimen and a tremendous friend of Popovici OA. Noun in the genitive case.

Male. unknown.

Figures 253–261. *Fidiobia tripotini*: **253, 254** habitus, dorsal view (Holotype) **255** habitus, lateral view **256** head, dorsal view **257** head, lateroventral view **258a** antenna (♀) (OPPC0735) **258b** sensillar formula **259** mesosoma, dorsal view **260** mesosoma, lateral view **261a** wings (OPPC0735) **261b** WIP.

Material examined. 8♀. South Korea: ***Holotype*** 1♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 31.vii–16.viii.2003, leg. Tripotin P. (MT) (CNCI).

***Paratypes*:** 2♀, South Korea, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 6–31.vii.2003, leg. Tripotin P. (MT) (CNCI); 2♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 31.vii–16.viii.2003, leg. Tripotin P. (MT) (CNCI); 3♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 17.viii–5.ix.2003, leg Tripotin P. (MT) (OPPC0417; OPPC0733; OPPC0735).

Distribution. South Korea (Fig. 323).

Biology. unknown.

Diagnosis. This species can be recognized by the presence of a malar sulcus, the short transepisternal line and T2 which is elongate and longer than wide. All other Palearctic *Fidiobia* with 10-merous antennae have T2 wider than long and the malar sulcus absent.

Comments. *Fidiobia tripotini* is the only known species of the genus with a malar sulcus. The malar sulcus is not flanked by striation, a state that is found only in *Orwellium* Johnson, Masner and Musetti among extant Platygastridae. Other extant platygastrids with a malar sulcus, e.g. *Metaclisis* Förster, have facial and malar striae.

27. *Fidiobia vanharteni* Buhl, 2010

Figs 262–272, 324

Fidiobia vanharteni Buhl, 2010b: 306.

Description. Female. Body length: 0.7–0.8 mm. Colour of body: melanic (Figs 262–264, 268, 269).

Head (Figs 263, 265, 270, 271). Colour of head: dark brown with lighter lower frons. Sculpture of head: reticulate-coriaceous. Sculpture of occiput: transverse reticulate coriaceous. Ocellar prominence: absent. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL shorter than ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: alutaceous. Sculpture of frons immediately dorsal to toruli: the same as the rest of frons, but smoother. Epitorular carina: present. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: two setae. Malar sulcus: absent. ***Antenna*** (Fig. 266, 271). Colour of A1: light brown. Colour of clava: similar to or slightly darker than the rest of the antenna. Number of antennomeres: nine. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A7:A8:A9): 2:2:1.

Mesosoma (Figs 263, 265, 268, 271). Colour of mesosoma: brown. Mesosoma: weakly compressed dorsoventrally. Pronotum in dorsal view: narrow, collarlike. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: present. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: weakly convex. Parapsidal lines: absent. Sculpture of internotaular area: smooth in poststerior half, reticulate coriaceous anteriorly. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: greater than the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: absent. Fovea on scuto-scutellar sulcus: NA. Mesoscutellum: weakly convex. Shape of mesoscutellum: subrectangular. Axillular carina: posterior apex of axillular carinae surpassing the posterior edge of mesoscutellum. Axilloaxillular carina: unknown. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: entirely visible. Metascutellar carina: present. Width of metasomal depression: greater than the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: fused with metapleural carina. Foamy structure on plica: present, fused with foamy structure from metapleural carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: present. Setation of dorsal metapleural area: sparse, long setae in one longitudinal row. Setation of ventral metapleural area: sparse, long setae in one longitudinal row. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: absent. Mesopleural carina: present. Metapleural sulcus: absent. ***Wings*** (Fig. 267): macropterous. Apex of fore wing: rounded. Colour of fore wing: transparent. Transverse brown band on fore wing: present. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: not surpassing basal 1/4 of fore wing. Spectral veins on fore wing: absent. Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: yellow. Colour of fore tarsus: yellow. Colour of middle femora: yellow. Colour of middle tibiae: yellow. Colour of middle tarsus: yellow. Colour of hind femora: yellow. Colour of hind tibiae: yellow. Colour of hind tarsus: yellow.

Metasoma (Figs 262–264, 268): Posterior of T2 some or all tergites may be retracted under T2. Shape of T1: trapezoidal. Colour of T1: brown. Lateral setae of T1: 2 pairs. Colour of T2: brown. Shape of T2: longer than wide. Anterior pits of T2: distinctly separated. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T5: the same as T2.

Figures 262–267. *Fidiobia vanharteni*: **262, 263** habitus, dorsal view (**262** – CNC-05 **263** – CNC-04) **264** habitus, lateral view **265** mesosoma, lateral view **266** antenna (♀) (CNC-06) **267** WIP (CNC-06).

Male. unknown.

Material examined. 18♀. UAE: ***Holotype*** ♀, (Figs 263–267) (ZMUC).

Non-type material. 1♀, UAE, al-Ajban, N24.6, E55.016, 3.i–18.ii.2007, leg. van Harten A. (LT), (CNCI); 6♀, Sharjah, Khor Kalba, N24.59, E56.09, 4–11.iv.2006, leg. van Harten A. (LT) (CNCI); 8♀, Khor, al-Khwair, N25.57, E56.03, 9–16.vii.2007, leg. van Harten A. (LT) (CNCI); 1♀, Khor, al-Khwair, N25.57, E56.03, 2–13.v.2007, leg. van Harten A. (LT) (CNCI).

Yemen: 1♀, Ghail Ba Wazir, N14.77, E49.37, ?.xi–xii.2002, van Harten A. and Hubaishan M. (MT) (CNCI).

Distribution. Yemen, UAE (Fig. 324).

Figures 268–272. Holotype of *Fidiobia vanharteni*: **268** habitus, dorsal view **269** habitus, lateral view **270** head, dorsal view **271** antenna, head and mesosoma **272** data labels.

Diagnosis. *Fidiobia vanharteni* is relative morphologically similar to *F. hofferi* because of fore wings with short, hardly visible marginal fringe, presence of epitorular carina and metascutellum visible in dorsal view, but it can be recognized by its light coloration, faintly banded fore wing (uniformly hyaline in *F. hofferi*), and OOL slightly shorter or equal to the ocellar diameter (OOL is equal to about 2 OD in *F. hofferi*).

28. *Fidiobia vladlubomiri* Popovici & Masner, sp. nov.

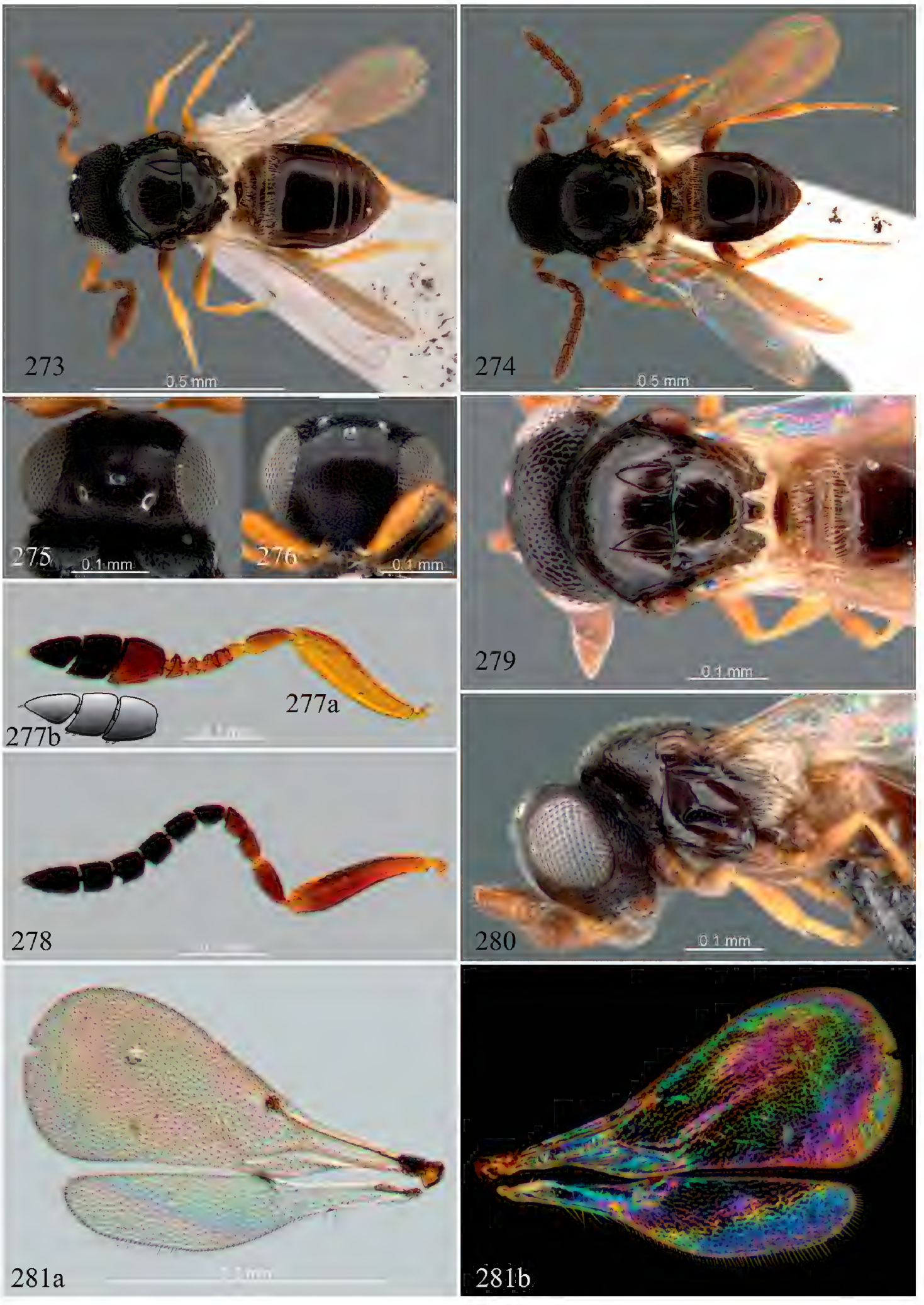
https://zoobank.org/4C7658D5-B4E8-4ECE-9B50-6AFC1661EFA1

Figs 273–281, 283, 325

Description. Female. Body length: 0.8–1.0 mm. Colour of body: melanic (Fig. 273).

Head (Figs 275, 276). Colour of head: black. Sculpture of head: reticulate-rugose. Sculpture of occiput: the same as the sculpture of head. Ocellar prominence: present. Preocellar depression: present. Paraocellar depressions: present. OOL / ocellar diameter: OOL equal with ocellar diameter. Orientation of lower half of inner orbits: visibly divergent. Sculpture of frons immediately anterior to ocellus: reticulate rugose. Sculpture of frons immediately dorsal to toruli: reticulate rugose. Epitorular carina: absent. Distance between toruli: smaller than the transverse diameter of torulus. Setation of clypeus: four setae. Malar sulcus: absent. ***Antenna*** (Fig. 277a, b). Colour of A1: brown. Colour of clava: almost similar to the rest of the antenna. Number of antennomeres: ten. Shape of A1: more or less cylindrical. Ventral (inner) lamella on A1: present as a trace in the apical part of A1. Length of A3 of female: distinctly shorter than A2. Sensillar formula (A8:A9:A10): 2:2:1 (Fig. 277b).

Mesosoma (Figs 279, 280). Colour of mesosoma: black. Mesosoma: cylindrical, not compressed dorsoventrally. Pronotum in dorsal view: present mostly as lateral shoulders. Transverse pronotal sulcus: present as a narrow groove along anterior rim of pronotum. Posteroventral end of transverse pronotal sulcus: dilated. Lateral pronotal area: sculptured only on the dorsal third. Antero-admedian line: absent. Mesoscutum: convex. Parapsidal lines: absent. Sculpture of internotaular area: absent. Notauli: present, incised. Shape of notauli: dilated posteriorly and acute anteriorly. Outer edge of notauli: medial to axillular carina, meet the scutoscutellar sulcus. Orientation of inner edge of notauli: not converging posteriorly. Length of notauli: half of length of mesoscutum, measured along midline. Length of notaulus / maximum width of notaulus: 2.0–2.9 times as long as wide. Distance between notauli: almost equal with the broadest part of notaulus. Transscutal articulation: complete. Scuto-scutellar sulcus: present only laterad. Fovea on scuto-scutellar sulcus: present on the entire length of scutelo-scutellar sulcus. Mesoscutellum: convex. Shape of mesoscutellum: semicircular. Axillular carina: posterior apex of axillular carinae touching the posterior edge of mesoscutellum. Axilloaxillular carina: absent. Sculpture of mesoscutellum: absent. Posterior mesoscutellar sulcus: absent. Metascutellum: not visible, covered by mesoscutellum. Metascutellar carina: present. Width of metasomal depression: the same with the length of lateral propodeal carina. Median carina between lateral propodeal carinae: absent. Transverse carina between lateral propodeal carinae: present. Foamy structure on transverse carina between lateral propodeal carinae: present. Foamy structure on metasomal depression: absent. Lateral propodeal carinae: parallel. Foamy structure on lateral propodeal carina: present on the entire carina. Plica: visible. Posterior end of plica: fused with lateral propodeal carina. Foamy structure on plica: present, fused with foamy structure from lateral propodeal carinae. Foamy structure on metapleural carina: present on the entire carina. Foamy structure on ventral metapleural area: absent. Setation of dorsal metapleural area: long and dense on entire surface, uniformly distributed. Setation of ventral metapleural area: long and dense on entire surface, uniformly distributed. Longitudinal striation on dorsal mesopleuron: present. Transepisternal line: complete, sigmoid. Mesopleural carina: absent. Metapleural sulcus: present, complete. ***Wings*** (Fig. 281a, b): macropterous. Apex of fore wing: rounded. Colour of fore wing: infuscate. Transverse brown band



Figures 273–281. *Fidiobia vladlubomiri*: **273** ♀, habitus, dorsal view (OPPC0331) **274** ♂, habitus, dorsal view (OPPC0502) **275** head, dorsal view **276** head, frontal view **277a** antenna (♀) (OPPC0313) **277b** sensillar formula **278** antenna (♂) (OPPC0502) **279** mesosoma, dorsal view **280** mesosoma, lateral view **281a** wings (OPPC0313) **281b** WIP.

on fore wing: absent. Submarginal vein in fore wing: present. Length of submarginal vein in fore wing: surpassing 1/3 the length of fore wing. Spectral veins on fore wing: present (medial and basal). Marginal setae of fore wing: faintly indicated. Disc of fore wing: with spinulose microtrichia. ***Legs.*** Colour of fore tibia: light brown. Colour of fore tarsus: yellow. Colour of middle femora: brown with lighter basal and apical ends. Colour of middle tibiae: brown with lighter basal and apical ends. Colour of middle tarsus: yellow. Colour of hind femora: brown with lighter basal and apical ends. Colour of hind tibiae: brown with lighter basal and apical ends. Colour of hind tarsus: yellow.

Metasoma (Fig. 273): Tergites posterior of T2 exposed and clearly visible. Shape of T1: subrectangular. Colour of T1: brown. Lateral setae of T1: numerous. Colour of T2: brown. Shape of T2: transverse. Anterior pits of T2: merging together in a deep and transverse anterior depression. Sculpture of T2, lateral to anterior pits of T2: absent. Colour of T3–T6: the same as T2.

Male (Fig. 274). Similar to female; differing in the structure of the antenna (Fig. 278).

Etymology. Patronym, named for the son of Ovidiu Popovici – Vlad Lubomir.

Material examined. 13♀ and 1♂. South Korea: ***Holotype*** 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 19.vi–24.vii.2007, leg. Tripotin P. (MT) (OPPC0047).

***Paratypes*:** South Korea: 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.vii–21.viii.2007, leg. Tripotin P. (MT) (OPPC0524); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.vii–21.viii.2007, leg. Tripotin P. (MT) (OPPC0331); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.vii–21.viii.2007, leg. Tripotin P. (MT) (OPPC0313); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 24.vii–21.viii.2007, leg. Tripotin P. (MT) (OPPC0332); 1♀, Chungnam, Daejeon-si, Wadong, 36.3601°N, 127.2345°E, 25.ix–17.xi.2007, leg. Tripotin P. (MT) (OPPC0543); 1♀, Gangwon-do, Chuncheon Nam-myeon, Hudong-ri, 34.6422°N, 127.6285°E, 17.viii–5.ix.2003, leg Tripotin P. (MT) (OPPC0734); 1♀, Chungbuk, Okcheon-gun Dongi-myeon, Soesan-li, 36.2764°N, 127.6131°E, 8–23.vii.2004, leg. Tripotin P. (MT) (OPPC0729); 1♀, Chungbuk, Okcheon-gun Dongi-myeon, Soesan-li, 36.2764°N, 127.6131°E, 19–28.vi.2004, leg. Tripotin P. (MT) (OPPC0061); 1♀, Kangwon, Chuncheon, Nam-myeon, Hudong-li, 6–31.vii.2008, leg. Tripotin P., pastured area, trail close to forest edge (MT) (CNCI); 1♂, Chungbuk, Okcheon-gun Dongi-myeon, Soesan-li, 36.2764°N, 127.6131°E, 19–28.vi.2004, leg. Tripotin P. (MT) (OPPC0502).

Laos: 1♀, Houa Phan, Phou Pane Mt., 1480–1510 m, 20°13'09"N, 103°59'54"E, 1–16.vi.2009, primary forest, leg. Kubáň V., (FIT), (CNCI).

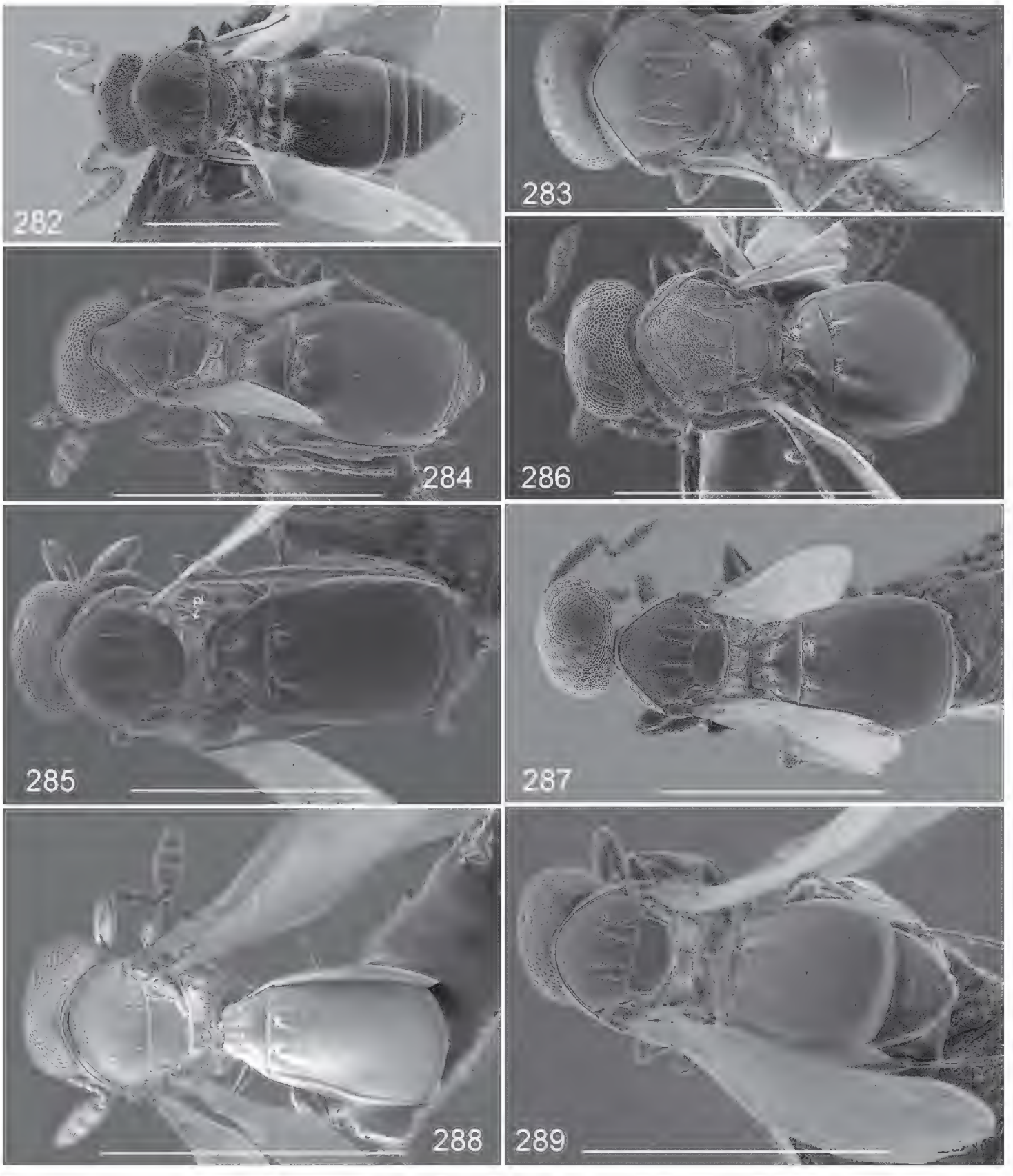
Japan: 1♀, Aichi, Shitara, Uradani, 18–24.vii.1994, leg. Yamagishi K., (YPT, beech forest) (CNCI); 1♀, Aichi, Shitara, Uradani, 900 m, 18–24.vii.1994, leg. Yamagishi K., (emergence trap, beech forest) (CNCI).

Distribution. Japan, Laos, South Korea (Fig. 325).

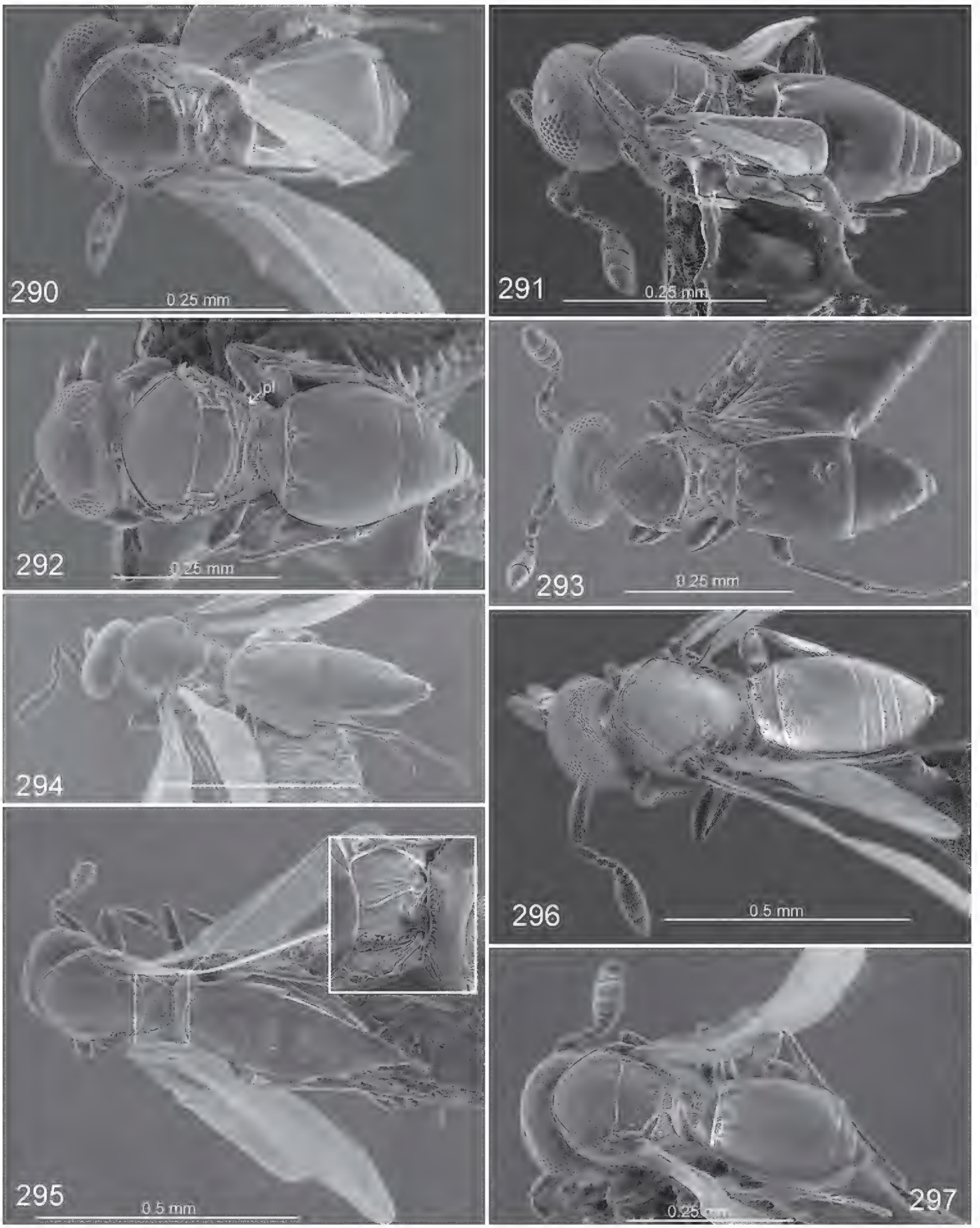
Biology. unknown.

Diagnosis. *Fidiobia vladlubomiri* is a distinct species that can be recognized by wide, deeply incised notauli with the lateral margins located medial to the axillular

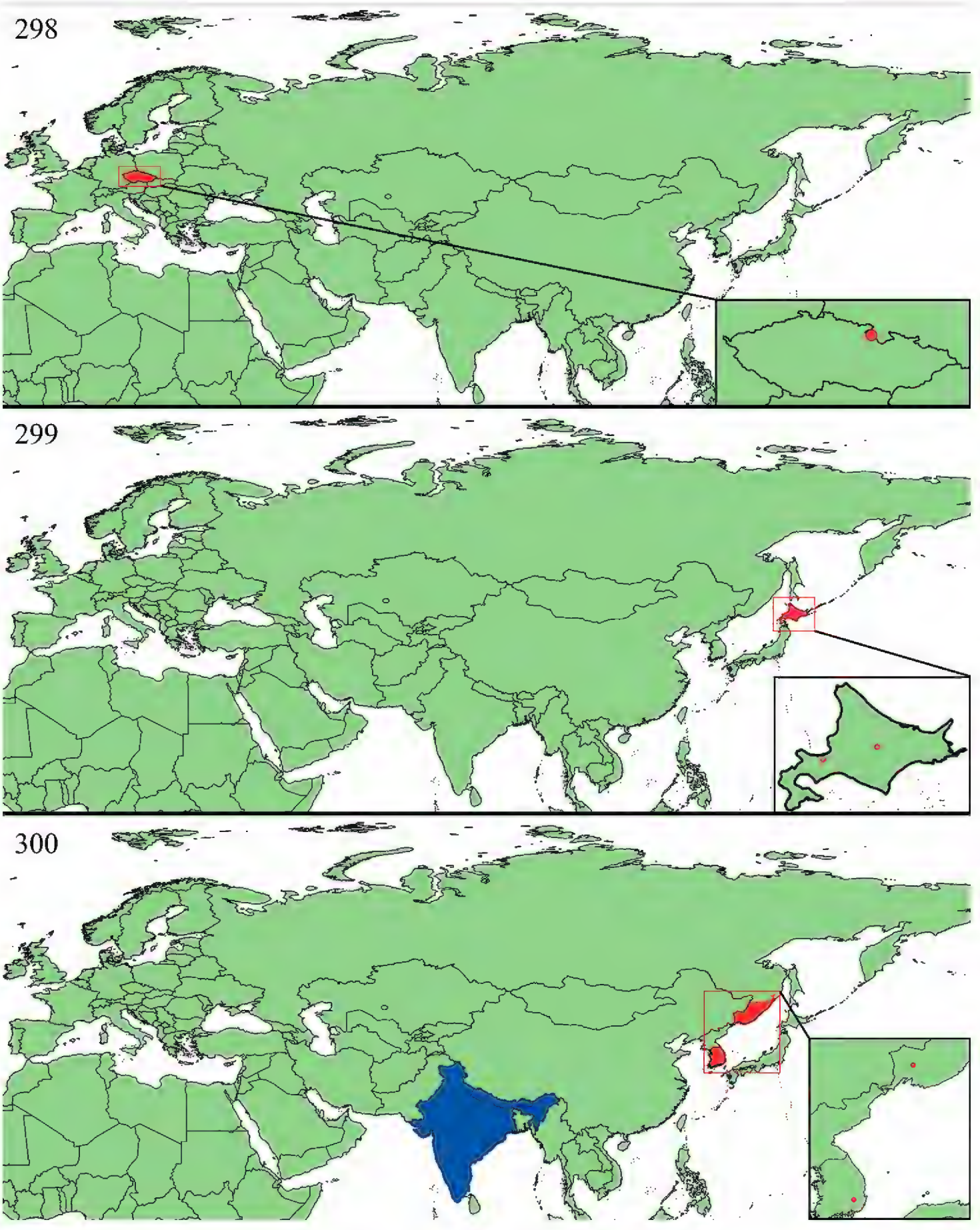
carina, meeting the scutoscutellar sulcus. The transepisternal line is nearly complete and sigmoid in shape. The dorsal mesopleural area has some transverse striae, and between these striae and the transepisternal line there is a large unsculptured area (in *F. striatitergitis* and *F. nipponica* this area is transversely striate). The dorsal metapleural area is covered with dense silvery setae that easily distinguish *F. vladlubomiri* from *F. striatitergitis* and *F. nipponica*. The papillary sensillum located at the apex of the distal clavomere (Fig. 277b) makes *F. vladlubomiri* unique among the known Palaearctic species of *Fidiobia*.



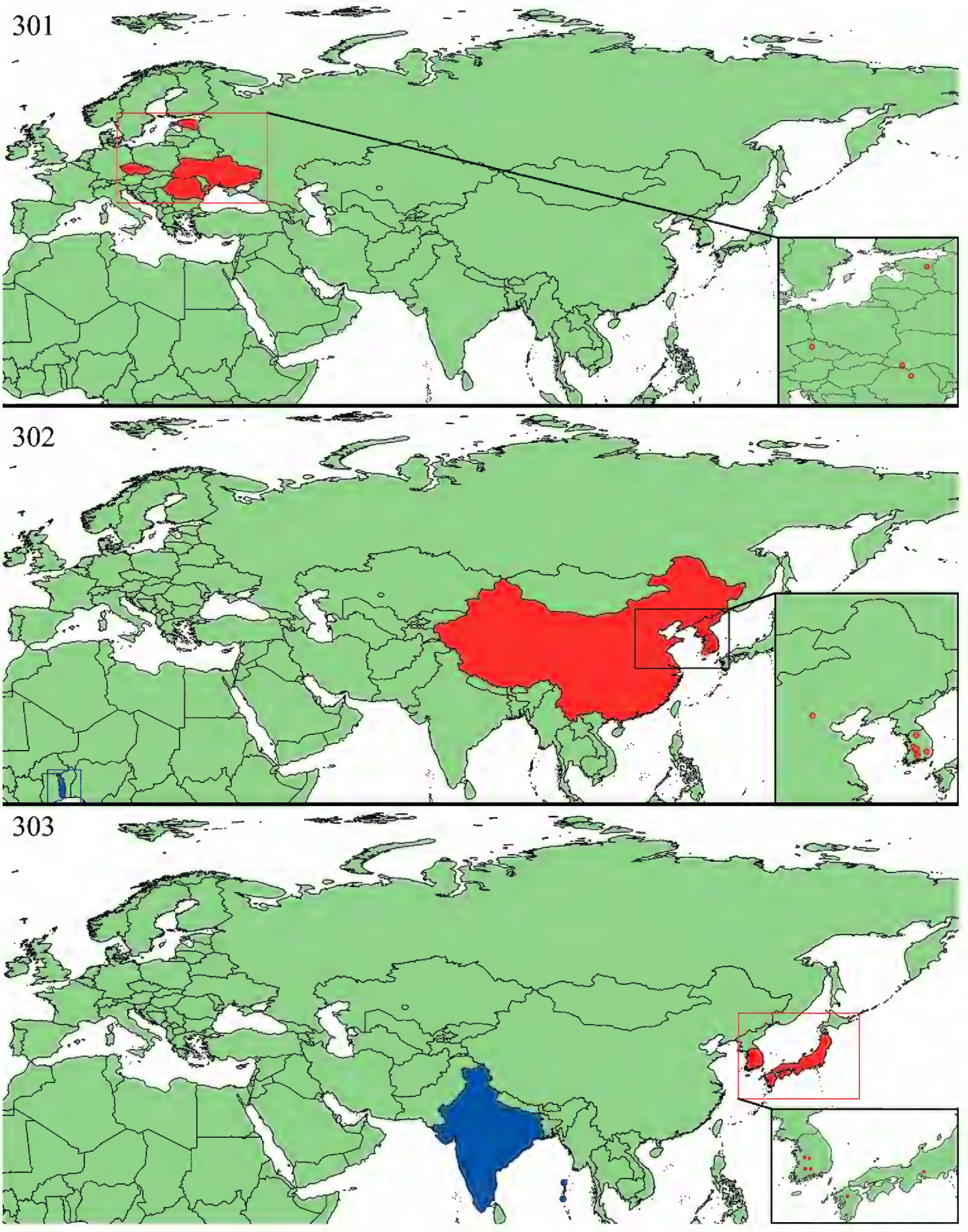
Figures 282–289. SEM of *Fidiobia* spp.: **282** *F. striatitergitis* **283** *F. vladlubomiri* **284** *F. pronotata* **285** *F. roatai* **286, 287** *F. rugosifrons* **288** *F. flaviabdominalis* **289** *F. rugosifronsoides*.



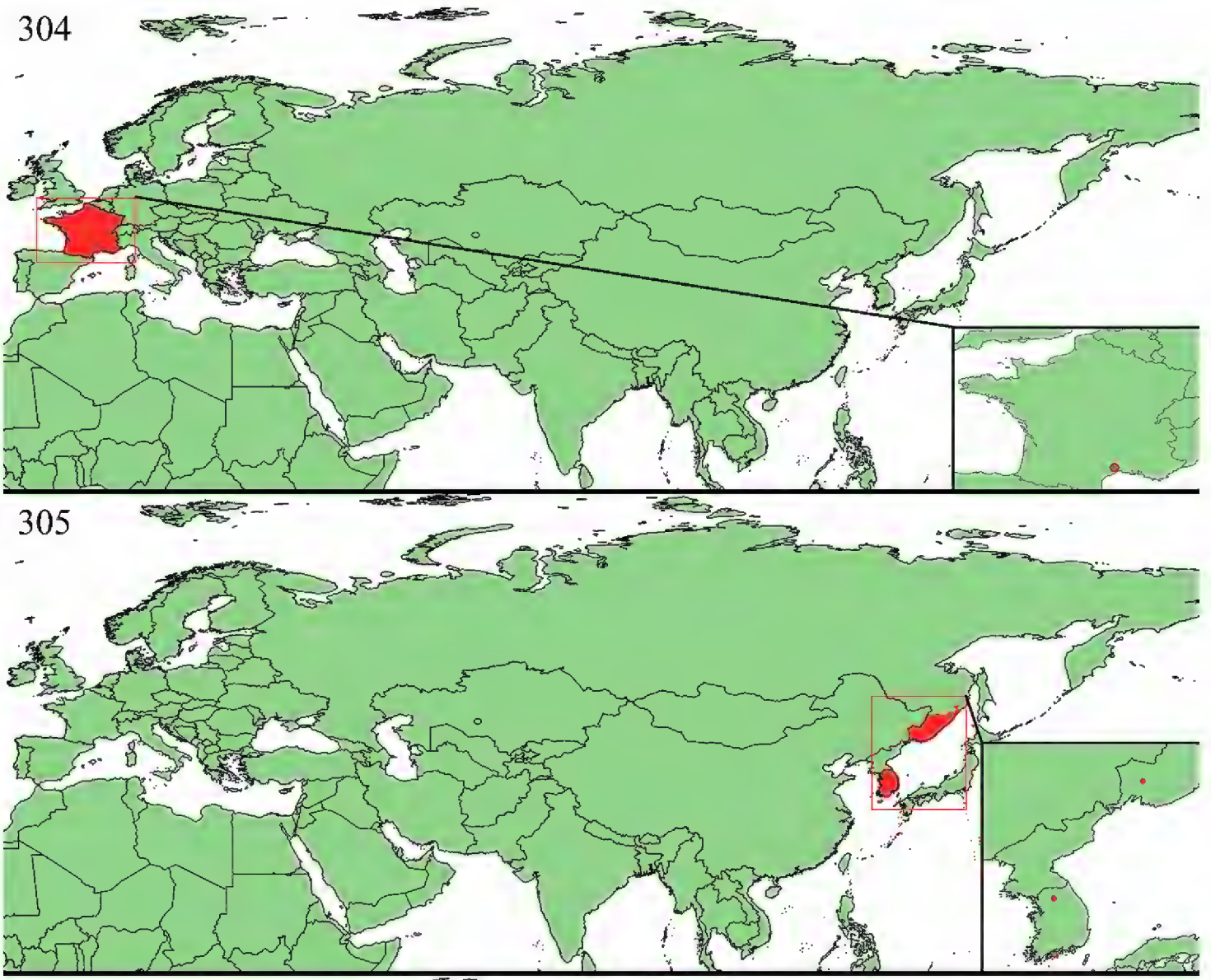
Figures 290–297. SEM o *Fidiobia* spp.: **290, 291, 292** *F. hofferi* **293** *F. sashai* **294, 295** *F. synergorum* **296** *F. filicornis* **297** *F. flaviabdominalis*.



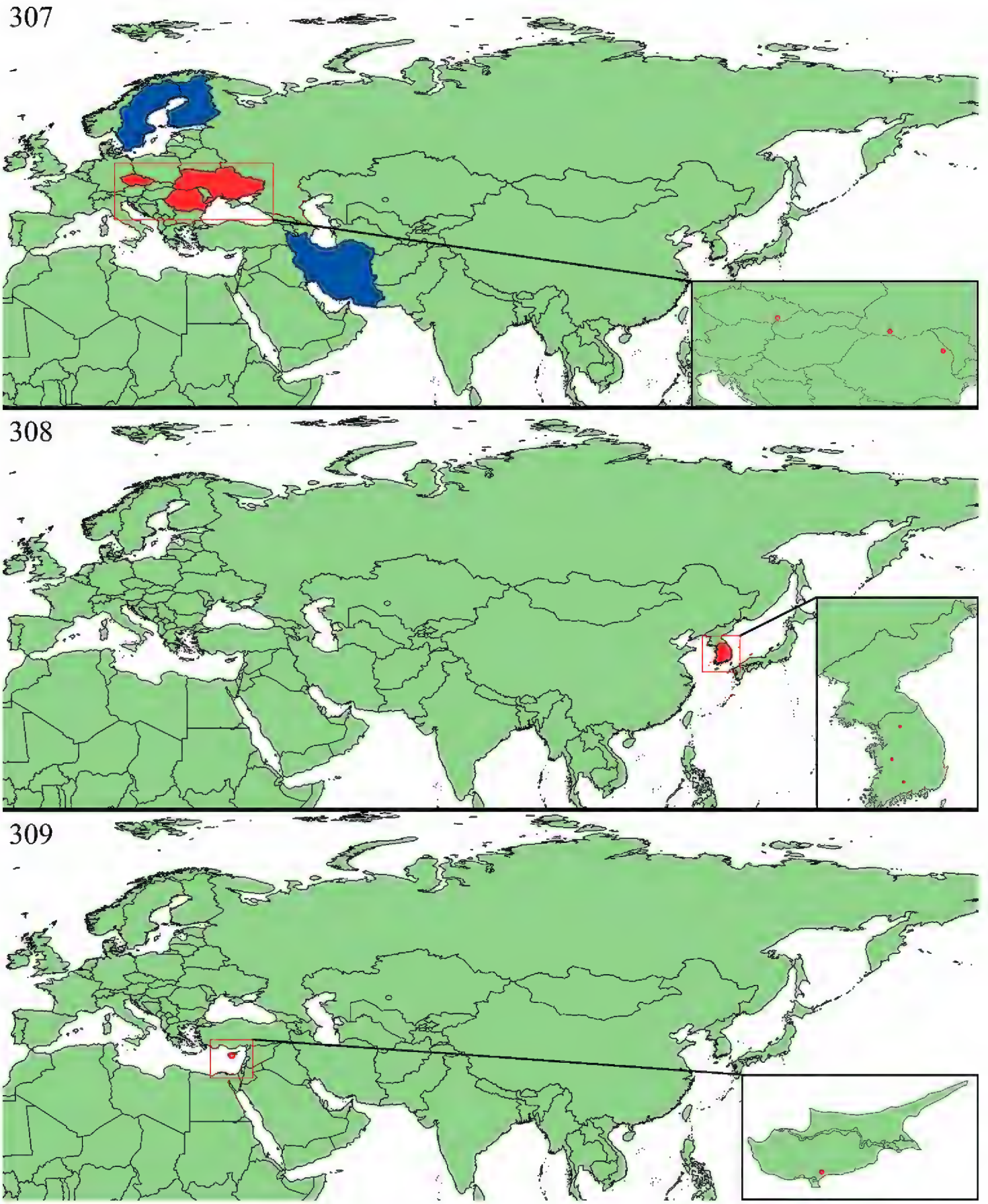
Figures 298–300. Geographical distribution of: **298** *F. bohemica* **299** *F. brevialis* **300** *F. brevinotaula* (Blue area–data from Veenakumari et al. 2018. Red area–our data).



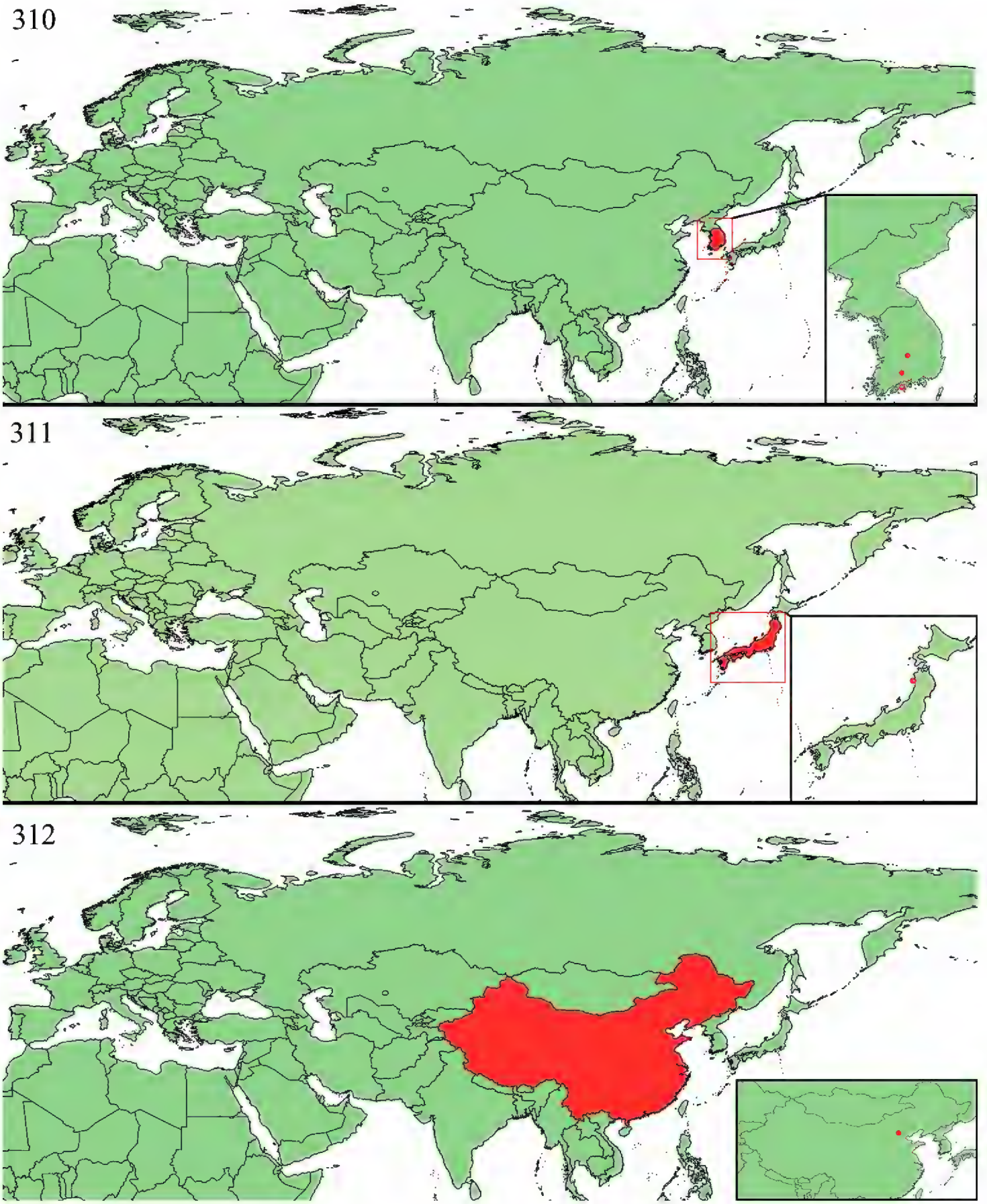
Figures 301–303. Geographical distribution of: **301** *F. communis* **302** *F. filicornis* (Blue area–data from Buhl 2014. Red area–our data) **303** *F. flaviabdominalis* (Blue area–data from Veenakumari et al. 2018. Red area–our data).



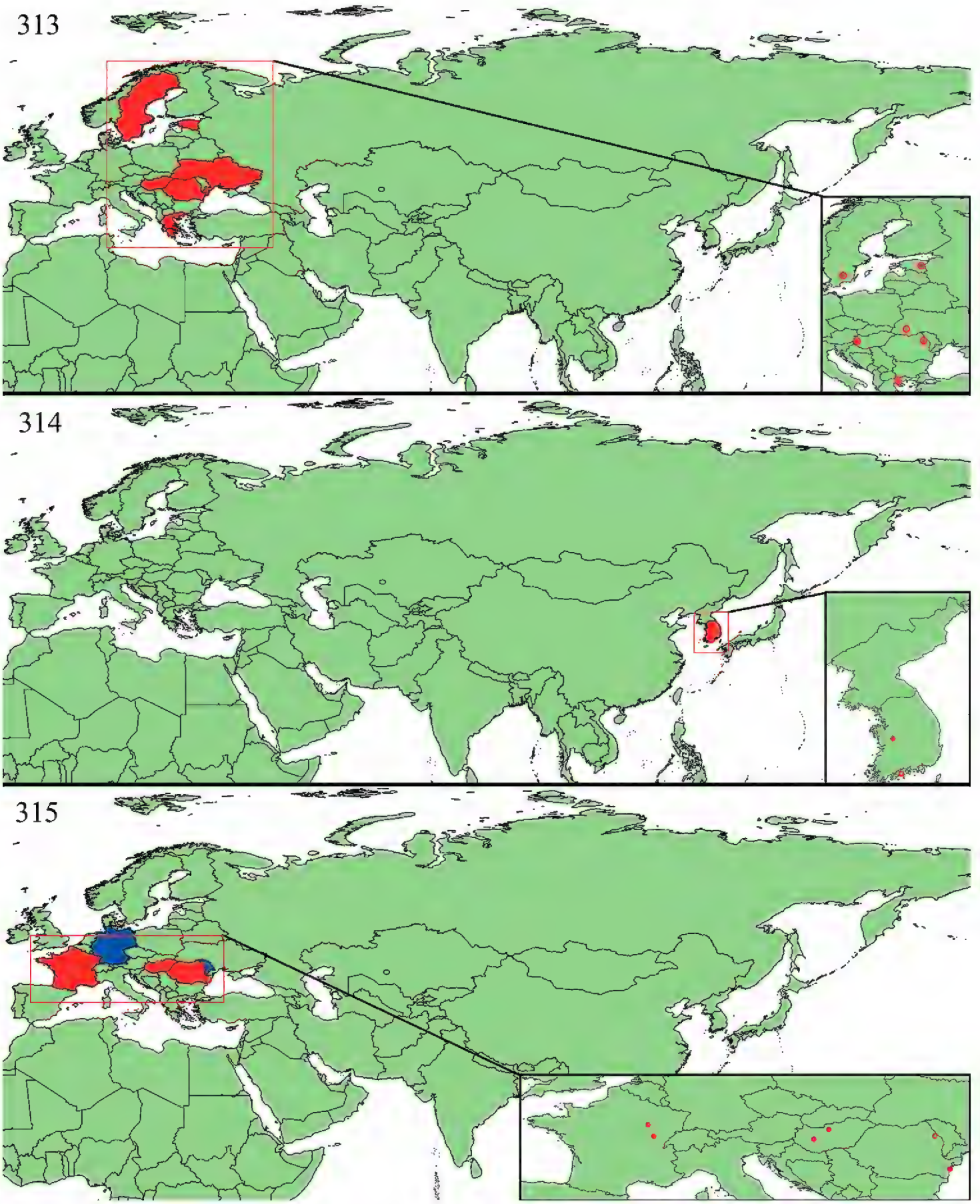
Figures 304–306. Geographical distribution of: **304** *F. gallica* **305** *F. hirta* **306** *F. hispanica*.



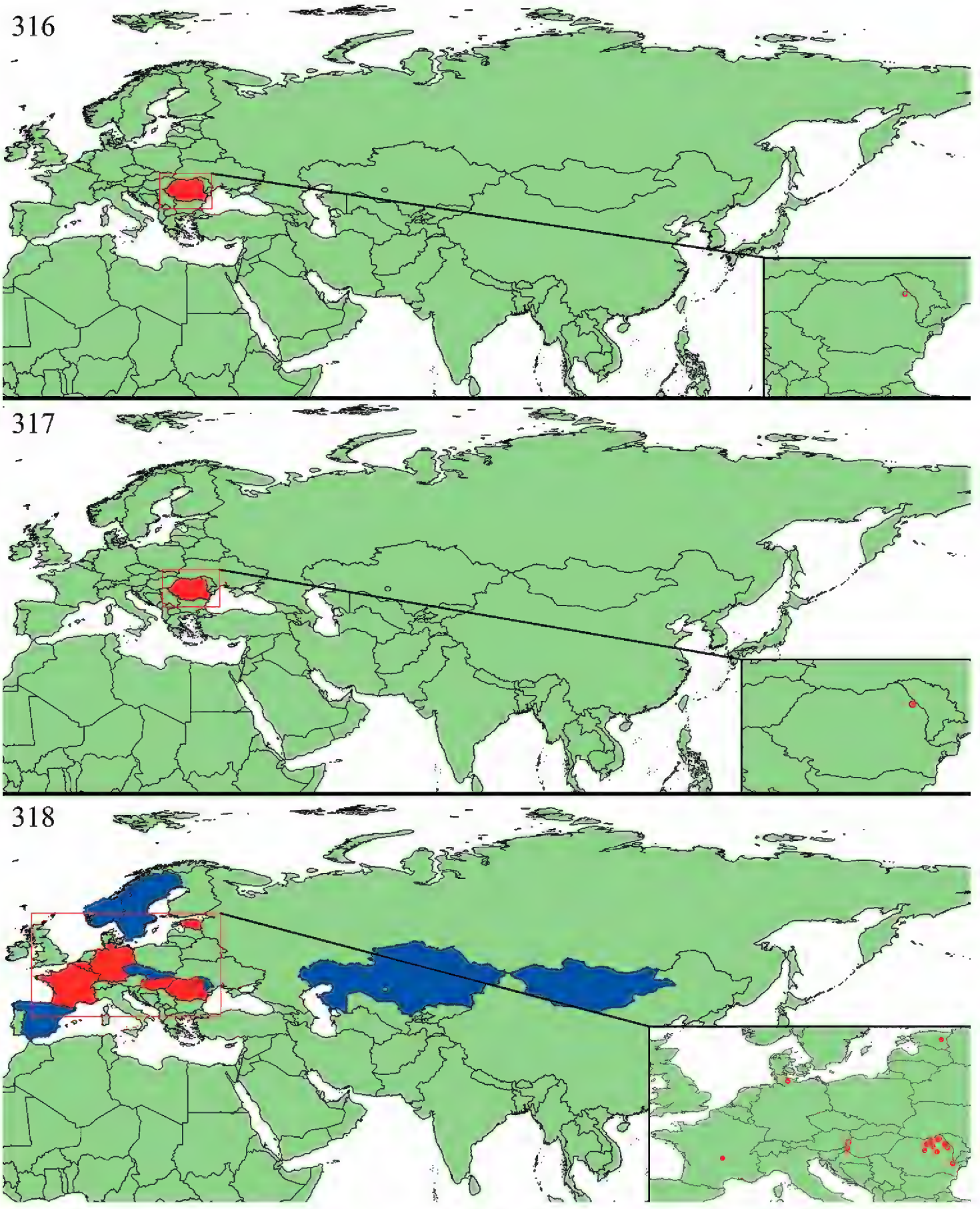
Figures 307–309. Geographical distribution of: **307** *F. hofferi* (Blue area–data from Asadi-Farfar et al. 2020 Koponen and Huggert 1982 Red area–our data) **308** *F. insoonae* **309** *F. lisenchiae*.



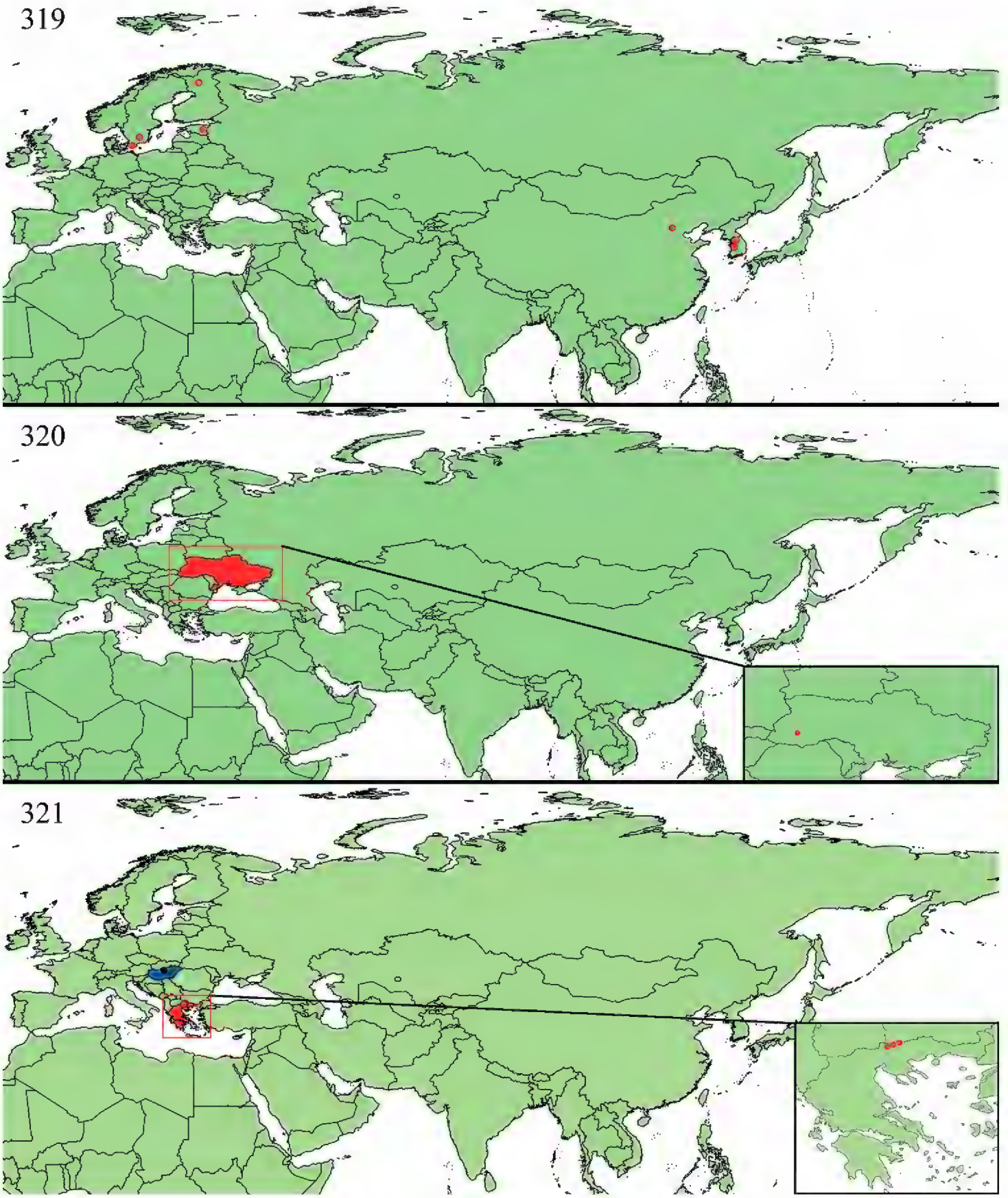
Figures 310–312. Geographical distribution of: **310** *F. longiclava* **311** *F. nipponica* **312** *F. platystasioides.*



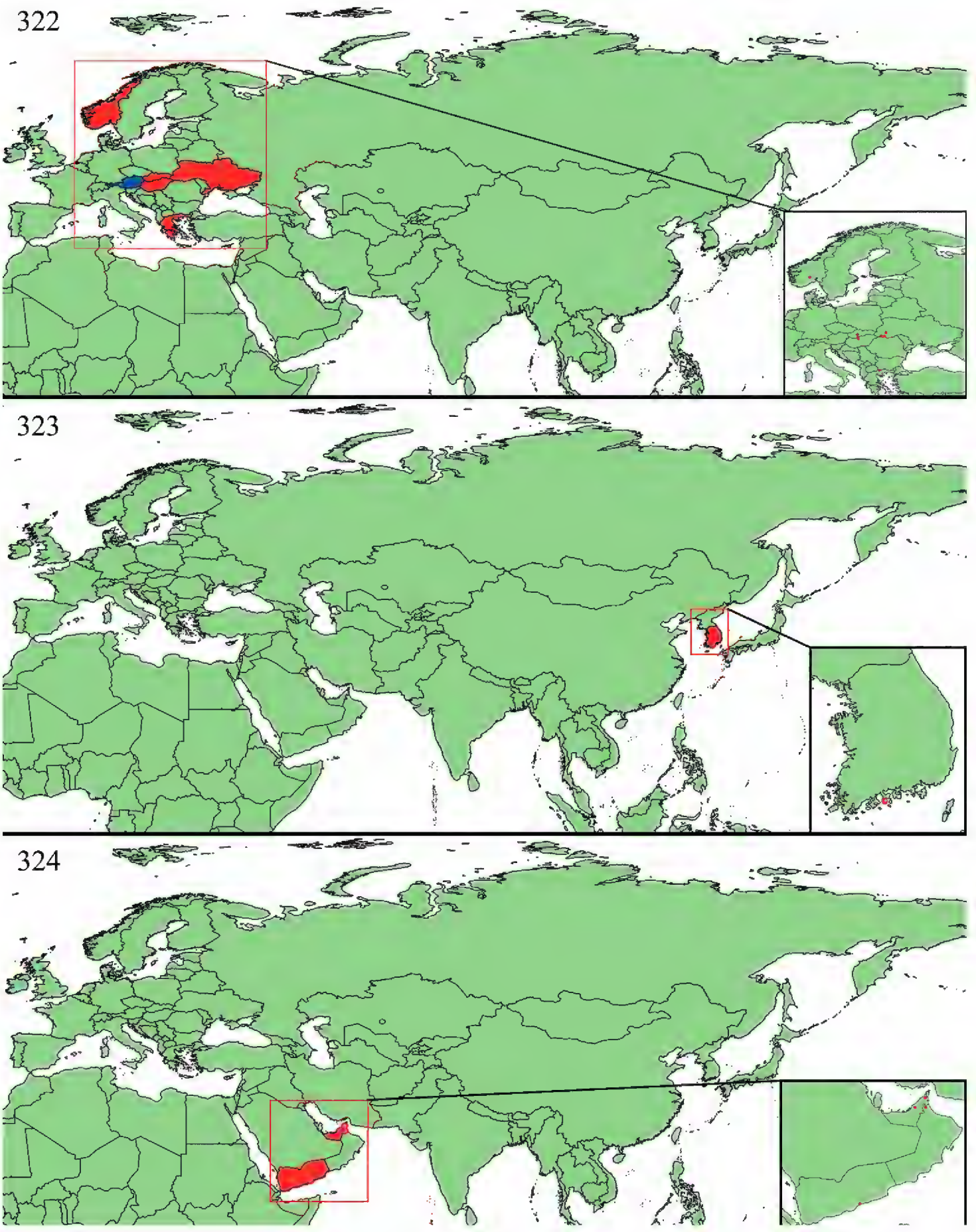
Figures 313–315. Geographical distribution of: **313** *F. polita* **314** *F. politoides* **315** *F. pronotata* (Blue area–data from Buhl et al. 2016 and Kozlov 1987. Red area: our data).



Figures 316–318. Geographical distribution of: **316** *F. pronotatoides* **317** *F. roatai* **318** *F. rugosifrons* (Blue area–data from Buhl 1999a, 2000, 2004 Kozlov 1978 Popovici and Buhl 2010. Red area–our data).



Figures 319–321. Geographical distribution of: **319** *F. rugosifronsoides* **320** *F. sashai* **321** *F. striatitergitis* (Blue area–data from Szabó 1962. Red area–our data).



Figures 322–324. Geographical distribution of: **322** *F. synergorum* (Blue area–data from Kieffer 1926. Red area–our data) **323** *F. tripotini* **324** *F. vanharteni*.

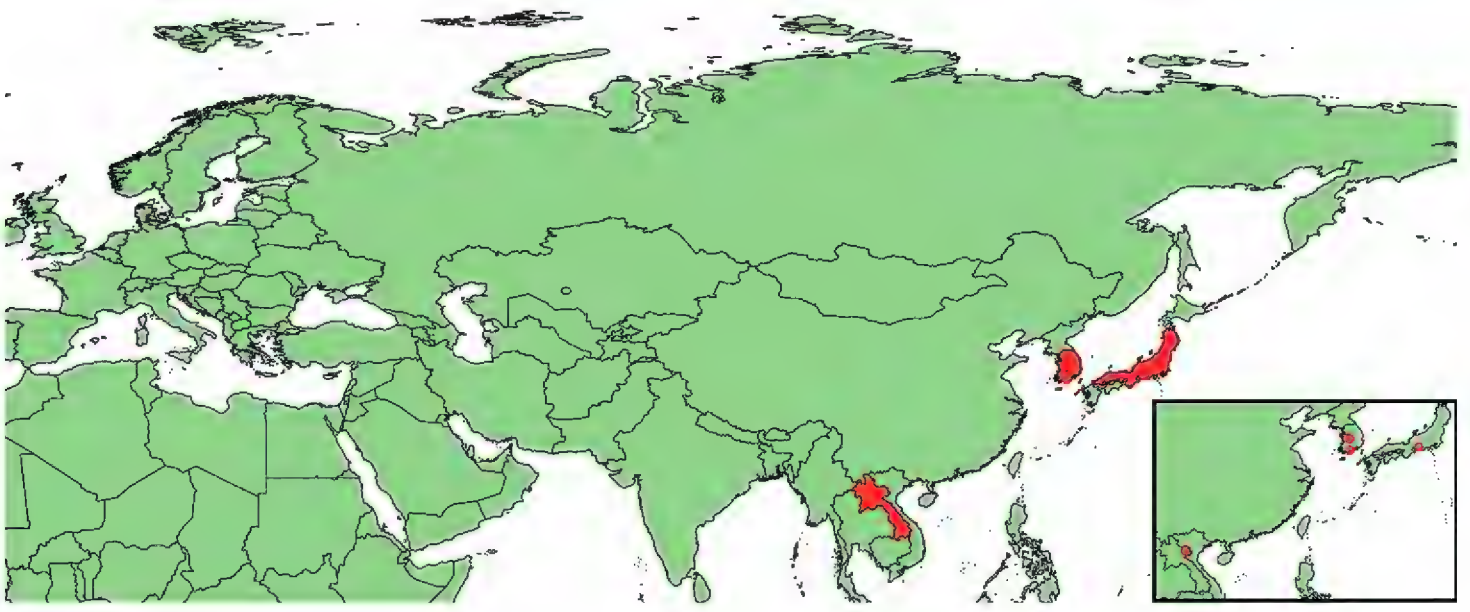


Figure 325. Geographic distribution of *F. vladlubomiri*.

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